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ORIGINAL ARTICLES.

THE TREATMENT OF COMPOUND FRACTURES.

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IN no class of surgical cases have the results of antiseptic treatment offered a greater contrast to those obtained in the pre-antiseptic days than in compound fractures. One of the leading surgeons of New York, who was once an interne of Bellevue Hospital, has repeatedly stated that during the eighteen months of his service there every case of compound fracture of the femur brought to the hospital, and there were a great many, died of septic infection. In contrast to this appalling record, the same institution, or any other modern city hospital, could to-day show case after case of severe compound fracture in which not only has life been saved, but a useful limb as well, and in which pus has not at any time been found in the wound. There is apparently very little recent literature on the subject of the treatment of compound fractures, most treatises on fractures dismissing it with the general statement that the wound should be treated on the usual antiseptic principles, and the fracture put up in a suitable retentive apparatus. It would seem that some account of the practical details of treatment of these cases as they occur in the service of a general hospital would have a certain value.

That the sound principles of antiseptic surgery, as applied to compound fractures, are not even now universally accepted is shown by the presence of an article in a current medical journal advocating the use of poultices. The writer assumes that suppuration is inevitable, and thinks poultices would hasten the appearance of pus and tend to prevent septic absorption. He is sufficiently impressed, however, with the value of asepsis to suggest that the poultice might be rendered aseptic by the addition of carbolic acid, and that by changing it every hour the possibility of its becoming a culture-field for germs might be prevented. It would seem scarcely necessary to point out that any dressing requiring such frequent changing would be a most unfortunate one for a fracture, and it is hardly possible that poultices will ever again become a favorite dressing for an open wound, even with the concession to cleanliness implied in the addition of carbolic acid. However, it is not at all necessary to assume that even the most unpromising compound fracture is certain to suppurate, as the following report of twenty cases clearly shows. These cases occurred in the services of Dr. C. K. Briddon and Dr. A. J. McCosh, in the surgical division of the Presbyterian Hospital, New York City, during a period of about six months.

Pus appeared in the wound of but one case treated in the hospital. In another, although the wound did not suppurate, and the patient appeared to be doing well, symptoms of tetanus appeared on the twelfth day, and the man died a week later. In a third case the patient left the hospital against advice, on the second day after the injury, and reappeared one week later with the wound infected. In all the other cases the wound remained clean throughout, healed readily, and a practically perfect result was obtained in each.

All of these patients were subjected to the ordinary dangers of infection from dirty clothing and dirty surroundings at the time of injury. Many of them received their injuries in the street, and the street-filth was liberally rubbed into their wounds. Some had, in addition to the broken bone and the wound leading to the point of fracture, extensive laceration and contusions of the surrounding tissues. The fact that such cases as these last escaped suppuration would certainly show that every case ought to be treated with the distinct purpose of rendering the wound aseptic, and keeping it so, and in no case should this be regarded as hopeless.

The general line of treatment was in all cases the same. Most of them were brought in by the ambulance. When the bone was found protruding from the wound no attempt was made by the ambulance-surgeon to reduce the deformity, on account of the liability of introducing dirt or other infective material into the depths of the wound. A liberal dressing of iodoform-gauze and sterilized gauze was applied to the wound, the limb immobilized by a suitable splint, and the patient taken at once to the hospital. Here an anesthetic, usually ether, is given. The limb is shaved, scrubbed with green soap, followed by ether, and finally irrigated with a solution of mercuric chlorid of 1 : 1000. The wound, protected during the cleansing of the skin by packing of iodoform-gauze, is now irrigated with bichlorid solution 1 : 1000. This should be done very thoroughly, in many cases as much as two or three quarts of the solution being used. From this point the same details are scrupulously observed as in any surgical operation.

The site of the injury is surrounded by sterilized towels. All instruments are boiled, and the hands of the surgeon and assistants are of course carefully disinfected. An examination of the wound is made; the position of the fragments, the amount of comminution, and the extent of laceration of the soft parts are accurately ascertained, remembering also the possibility of injury to the large vessels and nerves in the neighborhood. When there is much subcutaneous laceration, caused by the violent movements of ragged fragments of bone, the skin over the lacerated muscles should be opened up by liberal incisions and the wound again thoroughly irrigated with bichlorid solution. The incisions give to the irrigating fluid certain access to all parts of the wound, and also insure perfect drainage later, when the wound is packed with gauze. When it is remembered that infective material has been carried into the depths of nearly all these wounds before they come under treatment, the thorough opening up of all recesses and pockets seems most important. If the bone is comminuted, small loose fragments are removed. The deformity is then reduced, the fragments being brought into apposition, and the limb is held in the most perfect position possible, while the wound is packed with iodoform-gauze, and a large dressing of sterilized gauze applied. A few narrow strips of bass-wood splint, soaked in bichlorid solution and bandaged to the limb with a sterilized bandage, afford an additional precaution against the fragments slipping out of position during the application of the splint. A layer of sterilized cotton is bandaged over these coaptative splints, and the limb is put up in a suitable immobilizing apparatus. In nearly all the following cases a splint of plaster-of-Paris was used.

In those cases in which the fragments readily slip out of position, and when it is difficult or impossible, by simply holding the limb in position, to retain them in accurate apposition, it may be necessary to fasten them together with sutures of silver wire or silkworm-gut. In the great majority of cases this will not be called for, but two in the following list have been so treated.

When the wounds in the soft parts are extensive it is an open question as to whether, after disinfection, they should be partially closed by sutures. Some cases treated in this way have given results that were all that could be desired. There are certain considerations, however, that strongly argue in favor of leaving the wound entirely open and packing it throughout with gauze. No time can be saved by sewing it up, since, even when left open, the wound in the soft parts will be healed before the bone has united with sufficient firmness to permit active use of the limb. But the consideration of greatest weight in determining treatment is the additional security against suppuration which is obtained by leaving the wound open, and packing it throughout. As suppuration is the usual cause of failure to obtain a good result, every possible safeguard against it is of importance, and it is always to be remembered that we are dealing with a wound infected from the beginning.

The splint is removed and the dressing changed for the first time in ten days, or two weeks after the injury, unless pain or a rise of temperature should render an earlier examination of the wound advisable. At this time any malposition of the fragments can still be corrected, as there will not be any appreciable union. The following cases were all treated as described, with such modifications as the peculiarities of each demanded:

CASE I was a boy, sixteen years of age. While running he fell down an embankment a distance of fifteen feet, striking on a large stone. Examination revealed a compound fracture about the middle of the right femur. The upper end of the lower fragment was protruding from the wound, which was on the outer side of the thigh. There was considerable subcutaneous laceration of the muscles. After cleansing of the limb, the patient being under ether, the wound was irrigated with a bichlorid solution 1 : 1000. It was then enlarged by incisions through the skin exposing the lacerated tissues beneath, and again irrigated. It was somewhat difficult to bring the fragments into exact apposition, but this was accomplished by firm traction on the limb. The wound was then packed with iodoform-gauze and a large dressing of sterilized gauze and sterilized absorbent cotton applied. The straps for a Buck's extension-apparatus were placed in position, running well above the knee on either side, and the entire limb was then put up in a plaster-of-Paris splint, running from the toes to the groin. A weight of fifteen pounds was attached. The highest temperature was 101°, on the second day after the accident. The splint was cut down and the dressing changed on the tenth day. The wound was clean, and there was no appearance of any inflammatory action. The wound was washed out with hydrogen dioxid and bichlorid solution 1 : 5000, repacked and dressed, and a new plaster-splint applied as before. The dressing was changed, and a new splint applied every two weeks. The wound was entirely healed in eight weeks, no pus having appeared in it at any time. Union of the fracture was delayed, but finally became firm. When seen, six months after the injury, there was no deformity, and the limb was as useful as the other.

CASE II was a boy, eight years of age. He was run over in the street by a coal-cart, the wheel passing over his right thigh. Examination under ether showed a fracture of the femur, near its mid-point, with a large, ragged wound leading directly to the point of fracture. The tissues were much torn and contused. After cleansing the limb the wound was irrigated with bichlorid solution 1 : 1000. There

was ready access to all parts of the wound, rendering any enlargement unnecessary. The bony fragments were so shaped that they could be interlocked in apparently perfect position. On this account the leg was put in a plaster-of-Paris splint, without the addition of a Buck's extension-apparatus, after the wound had been packed with iodoform gauze and a copious dressing of sterilized gauze and cotton applied. The splint was carried above the thigh by means of a spica of the hip, thus immobilizing this joint. There was no rise of temperature, and but little pain. The splint was removed and the dressing changed on the tenth day. There was no pus or evidence of inflammation about the wound, but it showed some tendency to sloughing where the contusion had been greatest. It was irrigated with hydrogen dioxid and bichlorid solution 1 : 5000, loosely packed with iodoform-gauze, and dressed with sterilized gauze and cotton as before. Although the position of the fragments was apparently perfect, the possible danger of shortening of the limb made it seem safer to apply a Buck's extension-apparatus. This was done, the straps being carried almost to the point of fracture. Immobilization of the fragments was secured by means of coaptation-splints of tin, cut to fit the contour of the thigh, and fastened to it by means of straps and buckles. This line of treatment was continued, the wound being dressed once a week. There was no pus at any time. At the second dressing all sloughing had ceased, and the wound was beginning to granulate freely. In nine weeks the wound was healed, and union was firm, with no shortening. When seen four months after the injury the boy walked with no evidence of having been hurt, the result being practically perfect.

CASE III was a boy, thirteen years of age. While riding a bicycle he collided with an ice-wagon. The wheel of the wagon is said to have passed over his left leg. The handle of the bicycle was driven into the tissues of the left thigh on its outer aspect. Examination under ether showed an extensive lacerated wound on the inner side of the knee, extending into the popliteal space and exposing the inner hamstring tendons. The internal saphenous vein was torn across. A punctured wound on the outer side of the lower third of the thigh also extended into the popliteal space communicating with the wound on the inner side. The posterior ligament of the knee-joint was torn away, and the finger passed readily into the interior of the joint. The popliteal artery and vein were intact, though it was difficult to understand how they escaped injury. There was a fracture of the lower end of the femur, the line of fracture running from the upper boundary of the external condyle, obliquely downward and inward into the knee-joint. Hemorrhage at the time of the accident was so severe as to require the application of a tourniquet to the femoral artery. The wound was thoroughly irrigated with a solution of mercuric chlorid 1 : 1000, after the limb had been cleansed as described. The punctured wound on the outer side of the lower part of the thigh was found to run downward through the lacerated subcutaneous tissues to a point opposite the head of the fibula. This was laid open by an incision through the skin, and the whole wound again washed out. The tourniquet was removed and all bleeding vessels caught and tied. The fragment of femur was placed in as perfect a position as possible, and the wound packed with iodoform-gauze, one narrow strip running into the cavity of the knee-joint to secure free drainage. The limb was put up in a long, posterior Volkmann splint, reaching to the ischial tuberosity. The patient was suffering acutely from shock and loss of blood, and had to be freely stimulated with whiskey and strychnin hypodermically. The temperature did not rise above 101.5°, and the patient made an almost uninterrupted recovery. The dressing was changed on the eighth day. No pus was found in the wound, and it was washed out with hydrogen dioxid and bichlorid solution 1 : 5000, and loosely packed with gauze. Subsequent dressings were made once a week, and this treatment repeated. In eight weeks the wound had healed except for a healthy granulating ulcer, and there was firm union in the fracture. There was also some motion in the knee-joint, though the boy still wore a posterior splint in going about the ward. Two weeks later the splint was removed, and he was encouraged to use the limb, flexing and extending the leg as much as possible. Four months after the injury he walked without a limp. The wound was entirely healed, and flexion and extension at the knee-joint were perfectly restored.

CASE IV was a man, thirty-eight years old, who fell down a well a distance of ninety feet, receiving numerous contusions and a compound fracture of the right patella, evidently caused by direct violence. The patient was first seen about fifteen hours after the accident, and no attempt had been made to cleanse the wound. It was bound up in dirty rags, and part of it was covered with a large paster-ballot, applied directly to the bleeding tissues. Examination under ether showed the tissues over the patella to be much torn and bruised. The line of fracture was transverse and near the middle of the bone. On the outer side there was some comminution, a number of small fragments being removed. The joint-capsule was extensively lacerated, and especially so on the outer side. There were marks of contusions involving most of the limb, from the lower part of the thigh to the foot. The skin having been cleansed as usual, the wound and joint-cavity were washed out with solution of bichlorid 1 : 10,000, several quarts being used. The joint-cavity was again irrigated with sterilized water. The fragments of the patella were united by means of sutures of silkworm-gut, one passed deeply through the insertion of the quadriceps extensor tendon at the upper border, and one through the ligamentum patellæ at the lower border. The free ends of these two sutures were tied over the anterior surface of the patella, thus securing and maintaining accurate apposition of the fragments. The sutures running over the anterior surface of the bone acted as splints and prevented any tilting of the fragments. The torn periosteum over the anterior surface of the patella was united by a few sutures of fine silk. The tear in the outer side of the capsule of the joint was also partly closed

by sutures of catgut, leaving an opening large enough to accommodate a good-sized tampon of iodoform-gauze, which ran directly into the joint, to serve as a drain. Other tampons of gauze were carried into the depths of the wound in the soft parts, and a large dressing of sterilized gauze and cotton applied. The leg was put up in a long posterior Volkmann splint. The temperature rose rapidly, reaching 102.5° on the day after the operation, and 103.5° on the next day. The wound was then dressed and found full of pus. It was thoroughly washed out with hydrogen dioxid and bichlorid solution 1:5000, and loosely packed with iodoform-gauze, so as to give the freest possible drainage. The next day there was no improvement, the temperature being still high and the local process unchecked. A continuous irrigation of iced bichlorid solution, 1:10,000, was then begun. This caused a fall in the temperature and some lessening of the discharge of pus. All hope of union in the patella was abandoned, and the sutures removed, thus completely opening up the wound. For four weeks the improvement was slow, the temperature in the afternoon being from 100° to 101.5°. In spite of daily dressings it was impossible to stop the suppuration. Occasionally there would be some burrowing of the pus. The undermined tissues were promptly laid open by incisions as soon as discovered, and the sinuses washed out with hydrogen dioxid and bichlorid solution. The original infection appeared to have been a very virulent one, and the extensive areas of contused tissues offered an admirable culture-ground. About six weeks after the injury the patient began slowly to grow worse. The afternoon temperature gradually grew higher, and his general condition was not so satisfactory. The process at the knee was still slowly improving, and showed nothing to account for the change. A new focus of suppuration was discovered, however, in the bruised tissues about the ankle. This was treated in the same way, being promptly opened up, washed out, and dressed daily. In spite of every effort to check the process, however, it slowly advanced, and finally invaded the ankle-joint and the joints between the tarsal bones. The temperature now reached 104° and 105° in the afternoon. There was profuse sweating and occasional chills. The symptoms of septic intoxication finally became so serious that amputation of the thigh was decided upon in order to save the patient's life. This was done nearly three months after the original injury, and improvement began at once. The temperature became normal for the first time since the accident, the amputation-wound healed readily, and the patient rapidly regained health and strength.

I have given the details of this case rather fully, because in its course and final result it offers such a vivid contrast to the other cases described. Nothing could more clearly emphasize the importance of avoiding infection when possible. The causes of the unfortunate course and termination in this case are to be found, I think, first in the length of time between the injury and the first attempt to cleanse the wound, and, second, in the extensive contusions, which must have diminished the natural resistance of the tissues.

CASE V was a man, forty-three years of age, who fell while running, receiving a fracture of both bones of the left leg. Examination showed a ragged wound over the inner side of the lower third of the tibia, evidently produced by the protrusion of a fragment of bone. There was a fracture of the fibula at the same level. Under ether the limb was thoroughly cleansed, the wound irrigated with mercuric chlorid solution, 1:1000, and enlarged sufficiently to open up all pockets and sinuses. A number of small detached fragments of bone were removed, and the wound again thoroughly washed out. There was considerable misplacement of the fragments, and the deformity, though easily reduced by means of traction and direct pressure, recurred readily. The desirability of wiring the fragments together in order to secure accurate position was discussed, but it was finally decided to have an assistant carefully hold the foot in position, aided by an orderly holding the leg above, while the wound was packed with iodoform-gauze and a dressing of sterilized gauze applied. Over this dressing a number of strips of bass-wood splint were strapped with adhesive plaster to maintain the position, while a splint of plaster-of-Paris was applied from the toes to the middle of the thigh. The highest temperature recorded was 99.6°, forty-eight hours after the injury. There was no pain after the second day, and the splint was not cut down for two weeks, when the dressing was found soaked with a dried bloody discharge. On removing the gauze-packing the wound was found clean and beginning to granulate. The position of the fragments was excellent. The wound was washed out with hydrogen dioxid and bichlorid solution, 1:5000, repacked loosely with iodoform-gauze, and the plaster-splint reapplied. Two weeks later the dressing was again changed. The patient had complained of some pain, and there was found a considerable discharge from the wound of an unhealthy-looking serous character, as well as some redness and edema about the edges. There was no elevation of temperature, and the general health was unimpaired. The wound was irrigated with hydrogen dioxid and bichlorid solution as before. Some infection being suspected, the wound was packed with gauze soaked in bichlorid solution, a wet dressing of the same applied, and the leg put up in a long Volkmann posterior splint. Two days later the dressing was changed, and all signs of inflammation having disappeared the leg was again put up in plaster. Recovery from this point was uninterrupted. The splint was cut down, the dressing changed, and the splint reapplied about every two weeks until the wound healed, which was accomplished in nine weeks from the time of the accident. Union of the fracture was somewhat delayed, but finally became firm. When seen six months after the injury the man was attending to his business, and had complete use of the limb. He still complained of occasional pain, which he described as "rheumatic," and there is at times

some edema of the foot, apparently caused by poor circulation.

CASE VI was a man, thirty-five years of age, who was run over by a truck. Examination revealed a comminuted fracture at the middle of the right tibia, with a large wound leading directly to the bone, a fracture of the fibula at the same level, and a simple fracture of the femur on the same side, at one inch above its mid-point. The compound fracture of the leg was treated as already described, straps for a Buck's extension being applied over the dressing, and running as high as the point of fracture in the femur. The entire limb from the toes to the groin was put up in plaster-of-Paris. Union in the tibia was delayed, owing to the extensive comminution, but there were at no time any signs of infection in the wound. Five months after the accident the patient was seen, and the usefulness of the limb found completely restored.

CASES VII to XVI, inclusive, were all compound fractures of the tibia, either with or without an accompanying fracture of the fibula. Each was treated as already described, and all escaped suppuration. A practically perfect result was obtained in every case, the usefulness of the limb being restored in periods varying from seven to twelve weeks.

CASE XVII was a man, twenty-seven years old, an alcoholic, who, while intoxicated, was run over by a street-car. There was a ragged, contused wound over the inner aspect of the ankle which exposed a fracture of the astragalus. The tissues were much bruised and torn. The wound was treated as usual, the leg and foot being put up in a plaster-splint. On the second day the temperature was 100.5°, and the patient exhibited the early symptoms of delirium tremens. These disappeared under large doses of strychnin and thirty-grain doses of trional, given to induce sleep. He did perfectly well until the tenth day after the accident, when he complained of a feeling of stiffness in the muscles of the lower jaw. The splint was immediately cut down and the wound examined. It looked well, except for some slight sloughing of the contused edges. It was washed out with hydrogen dioxid and bichlorid solution, and redressed. The patient gradually developed a well-marked typical attack of tetanus, dying a week later in a tetanic convulsion. In the meantime the wound was again opened up and washed out with a saturated solution of potassium permanganate, but without any effect on the course of the disease. This case is of especial interest as showing that, while the original efforts at disinfecting the wound were successful in destroying or rendering inactive the pyogenic bacteria, the tetanus-bacilli escaped.

CASE XVIII was a woman, sixty-five years of age, who fell down a flight of stairs, receiving numerous contusions and a compound fracture of the right humerus near the elbow-joint. A ragged wound on the posterior aspect of the elbow opened directly into the joint-cavity and revealed a typical T fracture of the lower end of the humerus, with a chipping off of a small fragment of the olecranon process of the ulna. This last was removed, and the fragments of the humerus were wired together, it being otherwise impossible to maintain them in position. The wound was dressed as described, the arm being put up in a plaster splint, the forearm in a position between pronation and supination, and flexed at an angle a little less than 90°. Although warned of the danger, the patient left the hospital the next day, reappearing five days later, unable to give an intelligent account of her movements in the meantime, and with a temperature of 103°. The skin about the wound was reddened, and there was slight edema, but no pus. The wound was washed out with hydrogen dioxid and redressed, the arm being put up in a right-angled tin splint, and rest in bed ordered. The temperature at once fell, and all signs of inflammation promptly disappeared. A week later the arm was again put up in plaster, and recovery was uninterrupted from this point. In six weeks there was firm union, and passive motion was begun. Three months after the injury flexion and extension were nearly complete and she used the arm in washing and household work.

CASE XIX was a man, twenty-eight years of age, who was run over by a cart. A ragged, contused wound on the inner aspect of the arm exposed a comminuted fracture of the left humerus opposite the point of insertion of the deltoid muscle. The wound was treated as usual, the deformity being reduced by making traction on the extended forearm. A plaster splint was applied from the fingers to the axilla and running over the point of the shoulder, the arm being at right angles to the body, and the forearm extended on the arm. There was no rise of temperature, and the wound healed readily. Four weeks after the injury the elbow was bent under chloroform and a plaster splint reapplied, with the forearm flexed on the arm at a little less than a right angle. In nine weeks union was firm and passive motion was begun. Three months after the accident the usefulness of the arm was fully restored.

CASE XX was a man, fifty years of age, who was run over in the street, receiving a compound fracture of the left humerus. This case is almost an exact counterpart of the last, and was treated in the same way. In eight weeks the union was firm, the wound had healed, and passive motion was begun. Four weeks later the patient returned to work with full use of the arm.

A review of these twenty cases, taken without any attempt at selection, and comprising all the serious compound fractures treated in the hospital during a period of six months, shows that in eighteen (90 per cent.) a practically perfect result was obtained, without pus appearing in the wound at any time. This ought to be sufficient to banish from all minds the idea that in compound fractures suppuration is inevitable. And this is an idea that, even in this age of antiseptics, is surprisingly prevalent outside of the large medical centers.

The study of these cases leads us to the conclusion that the essentials of treatment are:

I. To cleanse thoroughly and disinfect the wound at the earliest possible moment after the injury, and to keep it in an aseptic condition until it is healed.

II. To reduce accurately the deformity and apply a splint that shall hold the bony fragments in proper position, at the same time giving the parts surrounding the wound that perfect rest which contributes in no small degree to rapid healing.

In accomplishing the first of these aims the following points may be emphasized:

1. The thorough disinfection of the hands of the surgeon.

2. The sterilization of all instruments and dressings.

3. The laying open, by free skin-incisions, of all pockets and sinuses in the wounded tissues.

4. The securing of free drainage by leaving the wound open and packing it with gauze.

Finally, it may be remarked that while the foregoing results were obtained in hospital practice, there are in private practice no special difficulties in the way of carrying out the same treatment and obtaining the same results.

THE THOMSONIAN AND BOTANIC MEDICAL SYSTEMS.

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THE Thomsonian medical system arose in the United States early in the present century, attained considerable prominence and popularity for a few decades, largely under the name of botanic medicine, and is now nearly or quite extinct, with the exception of a slightly modified form known as physiomedicalism, which still survives in a few localities. The prominence and influence which the system in its time attained give it a place in the history of medical sectarianism. The subject seems sufficiently profitable and interesting as a matter of medical history and general medical information to warrant this historic and doctrinal review.

Samuel Thomson, the originator of the system, was born in 1769 in Alstead, a country place in Southwestern New Hampshire. He was brought up in the country, had almost no education whatever, and as he grew into manhood engaged in farming. About 1792 he began to doctor, at first in his own family and then among his neighbors. As years passed he developed his medical notions, and his reputation and practice extended. From about 1806 he engaged in itinerant medical practice, travelling about from town to town in Northern New England. In 1813 he obtained a patent on his system, by virtue of which he claimed sole proprietorship and control of it, and made the "right" to use it a simple article of commerce. Under his management Thomsonism was preëminently a system of family medicine and treatment. He taught that food and medicine are analogous, and, growing side by side in the fields, it is as simple and natural for people to prepare and administer their own medicines in disease as to produce food for hunger. A scheme for doing this and the right to use it was what Thomson had for sale; he charged $20 for each invisible right and a little book of instructions, the purchasers agreeing not to divulge any of the information so obtained, and being organized into the "Friendly Botanic Society."

For many years Thomson travelled about, mostly in New England, selling his right, books, and medicines, and overseeing the operations of local agents. With the latter Thomson was usually at loggerheads, due to his selfishness, avarice, and jealousy. The profits from the sale of his twenty-dollar patent book must have been something handsome; his agent for the Ohio Valley and the South, for instance, in 1827–30 sold 4000 copies, representing a gross return of $80,000. About 1822 Thomson published two books on his system, by which its extension beyond the limits of his personal management was facilitated. These were a *Narrative of the Life and Medical Discoveries of Samuel Thomson, Containing an Account of His System of Practice and the Manner of Curing Disease with Vegetable Medicine upon a Plan Entirely New*, partially unfolding the system; and his *New Guide to Health, or Botanic Family Physician*, which contained his autobiography and a complete presentation of the system. These books had a large circulation, and went through many editions during the next twenty years. In 1841 *The Thomsonian Materia Medica, or Botanic Family Physician*, was published, a larger and more pretentious treatise, nominally by Samuel Thomson, but really written by his son John. Samuel Thomson died at Boston in 1843.

From the testimony of contemporaries, and even followers, it appears, as his autobiography indeed shows, that Thomson was an ignorant, illiterate, narrow man, high-handed with others, and of some financial shrewdness. He had practically no education whatever, least of all in medicine; he never attended a medical school or studied under a preceptor. His medical knowledge consisted in the notions picked up by a narrow and ignorant man within the small field of observation of a country neighborhood. He says, for instance, that nearly all his instruction in obstetrics consisted in a twenty-minute conversation with a midwife. One would suppose that such an utter lack of education would have entirely discredited all Thomson's pretensions to medical knowledge and authority.

The Thomsonian pathologic and therapeutic

doctrines, as promulgated by their founder and held by his stricter followers, were essentially as follows:

Heat is life and cold is death. Life depends on heat; food and medicine are the fuel of heat, and therefore of life. The process of digestion causes the consumption of food, and thus supports the heat and vitality of the body. The stomach, therefore, is the organ upon whose proper action depends almost entirely the maintenance of heat and health. When the food is not digested properly the production of heat diminishes, the vital powers are depressed, and this constitutes disease. The main indication in the treatment of disease is, accordingly, the clearing out of the stomach and its restoration to proper action; this Thomsonism accomplished by violent emetics.

Heat being the basis of life, fever is a friend and cold an enemy to health. Consequently, from the Thomsonian standpoint, antiphlogistic and antipyretic methods of reducing fever—by bleeding, purgatives, cardiac sedatives, application of cold, etc.—were unnatural, inefficacious, and injurious. All fevers are of the same essential nature, consisting of a decrease of internal and disproportionate increase of external heat, a struggle between the cold and the heat. One of the chief indications of Thomsonian treatment was, accordingly, to promote the fever, or heat, and decrease the cold, for which steam baths and capsicum were the principal agents employed.

The influence of torpidity of the excretory functions, especially of the perspiration, in causing disease was recognized. That all diseases are of essentially the same nature was a doctrine which justified the practice of treating all diseases in essentially the same way.

Thomson had other notions concerning "canker," the vital power, respiration, medieval ideas of the elements (earth, air, fire, water) composing the body, etc., which are beyond ordinary comprehension or have no practical medical bearing.

The Thomsonian therapeutic agencies consisted of a few drugs, mostly arranged in six classes and designated by Thomson (but not so much by his followers) by numbers rather than by name, steam baths, and injections.

Thomson's "No. 1" was emetic medicine. Violent and repeated emesis was practised in nearly all cases of disease, and to this treatment the most beneficial results were ascribed. For this purpose lobelia, the main drug of Thomsonism, was employed in tremendous doses, as high as one-half ounce of the seeds. In the face of repeated fatal cases of poisoning by the drug, and of numerous legal trials to which many of them were subjected for deaths caused by its use in their practice, the Thomsonians insisted that lobelia was a perfectly harmless, innocuous medicine, not under any circumstances poisonous; and they endeavored to explain away the fatalities that occurred under its use, and denounced the assertions of its poisonous nature as malicious slanders. Of this point the following remarkable passage from *Wilkinson's Botanico-medical Practice* (1845), relating to the attitude and opinions of regular physicians concerning lobelia, is a characteristic illustration:

> "Every particle of honesty, goodness, benevolence, and every other Christian virtue and gentlemanly principle was wholly disregarded and swallowed up in their determined, combined, formidable, and unceasing opposition to this innocent plant. Every mean, low, base, insignificant, wicked, ungentlemanly, unfair, Heaven-daring, principle-disgusting, and soul-revolting measure was eagerly and promptly made use of to suppress the expanding and deserved fame that lobelia was constantly acquiring."

"No. 2" was stimulants—capsicum and the like. "No. 3" consisted of astringents, or "canker medicine." "No. 4" was "bitters, to correct the bile and restore digestion." "No. 5" was peach-meats and cherrystones, "syrup for the dysentery, to strengthen the stomach and bowels, and restore weak patients." "No. 6," myrrh, turpentine, and camphor, was "rheumatic drops." Other preparations were nerve-powder, composition, cough-powder, cancer plaster, salve, etc.

Steam baths were one of the main features of Thomsonian treatment; they were universally used, and the highest importance was laid upon their operation.

"Courses of medicine" constituted a prominent method of treatment; these were used as a routine measure in most cases of disease. A course of medicine usually consisted of, first, a steam bath; next, profuse emesis with lobelia; third, an injection to open the bowels; fourth, another steam bath. These courses were repeated indefinitely; they were employed indiscriminately, and extravagant claims were made for their efficacy.

Thomsonism made lofty claims of using only innocuous and gentle medicines, and vigorously denounced bleeding and the use of alleged harsh drugs, like opium, mercury, arsenic, antimony, niter, and other mineral medicines. It styled itself a botanic system, and attempted to create prejudice against the employment of mineral drugs, and cast a slur on regular medicine by calling it the mineral school and charging it with a predilection for using injurious treatment.

Thomsonism first attained popular strength in New England under Thomson's personal management, and was sustained in that region largely by his personal efforts. It achieved a more extensive and more enduring development elsewhere through his agents and the circulation of his books, apart

from his personal influence, and by 1830 became widely disseminated through the Atlantic States and Ohio Valley. Thomson held the practice and the followers of his system well under his proprietary control until about 1830. Differences then appeared among his followers, and an element arose which was disposed to renounce his doctrinal and proprietary authority. Thenceforth Thomson's personal influence declined greatly, although the sale of the "right" continued at least as late as his death, in 1843. In its fullest development Thomsonism thus became divided into well-marked elements, differing more in ethics, name, and organization than in principles or practice, namely, (1) strict Thomsonism; (2) the more liberal section, commonly known as the botanic or botanico-medical system, from which developed (3) physio-medicalism, the only form of Thomsonism which continues in existence in America, to any extent at least, at the present time.

The strict Thomsonians, while slightly modifying his methods, professed to follow Thomson's teachings closely, and denounced the innovations and "improvements" of the botanics.

The main body of the adherents of the system, however, rejected Thomson's claims to a monopoly of it, and broke from his control. They generally styled their system the botanic or botanico-medical system; also (later) the reform medical system, and employed these names rather more commonly than the original designation, Thomsonian. They established the schools and journals and produced most of the literature of the system. The difference between their opinions and practice and those of the so-called strict Thomsonians was exceedingly slight; yet the refinements and innovations which they introduced were vigorously denounced by the latter. The main difference lay in organization and ethical methods, in the fact that original Thomsonism was a proprietary system for family and lay practice. Thomson bitterly opposed this element, since it injured his vanity, prestige, and profits.

This more respectable form of Thomsonism arose about 1830, concurrently with eclecticism, with which it was for a time quite closely associated, and was at its height in the United States for two or three decades following. Its greatest strength was in Ohio (also the headquarters of physio-medicalism and eclecticism), Massachusetts, New York, Pennsylvania, Georgia, and the adjacent sections, extending also into Canada. Over this wide territory at the time of its prevalence the system was very extensively diffused, and had quite a strong hold upon the people, especially and mostly in the country and among the lower classes. Botanic medicine had some organization for a time, in State societies, etc., but never secured much legal recognition. Considerable literature devoted to the system appeared, of which empiricism and illiteracy were prominent characteristics. The periodicals of the system were quite numerous, but mostly ephemeral. Of the five or six schools established to teach the system, all except two were short-lived, or after from two to four years of existence adopted eclecticism; these two were the Botanico-medical College of Ohio (the first botanic school), organized in 1839, which became the chief physio-medical educational institution, and the Southern Botanico-medical College of Georgia, organized soon after the preceding, which continued under various organizations and names, and finally merged into an eclectic school.

Botanic medicine was introduced into England about 1848 by the teachings of A. I. Coffin, after whom his followers received the ominously appropriate name of Coffinites. In that country it rapidly attained a large following and very many irregular practitioners or "poisoners," and achieved much notoriety from the frequent cases of fatal lobelia-poisoning, and convictions for manslaughter ensuing. The system survived there longer than in the United States, and probably still lingers to some extent.

By about 1860 botanic and Thomsonian medicine in the United States had lost its schools, journals, literary activity, and many of its adherents, and was on the decline. Much of its strength went over into eclecticism. Its last stronghold was Macon, Georgia, where a Thomsonian journal and college continued as late as or later than 1860. The system has become virtually extinct in its original form, with few if any genuine stragglers still surviving from the past.

Physio-medicalism arose among the botanics about 1840, under the teachings of Alva Curtis; this has continued in existence in some localities under a distinct organization and name.

Concerning the merits of the Thomsonian system little need be said. Thomson's commercial motives and methods of promulgating his practice were simply one with the many quack and patent-medicine enterprises now in operation, and his system would deserve no more notice than any of these except for its influence and bearings upon medical sectarianism in the United States as a matter of medical history. The Thomsonian theories were the crude, illogical, and frequently absurd notions of an absolutely uneducated man, whose entire observation and experience had been limited to the narrow field of a remote country neighborhood, and who was largely actuated by mercenary motives. The partial degree of truth in some of Thomson's ideas was exalted by narrow ignorance and enthusiasm to an exaggerated importance, so that the multitude of other and more important medical facts were lost sight of. The fact that theories and

methods such as these, and coming from such a source, should have received general and wide acceptance is an instance of the narrowness which the exaltation of one idea always produces and a commentary upon the gullibility and pervertibility of the human mind. The final extinction of Thomsonism throughout the extensive region where once it was a familiar household word, after undergoing the fullest trial by the world, was simply the inevitable fate of error.

CASES OF DIPHTHERIA TREATED WITH AND WITHOUT THE ANTITOXIN.

BY ROMULUS A. FOSTER, M.D.,
OF WASHINGTON, D. C.,

FROM the tabulated statements appended it appears:

1. That of 2740 cases of diphtheria—selected and unselected (and which included those that required tracheotomy and intubation)—treated with the antitoxin, only 509 died, or a mortality of 18.54 per cent.

2. That of 4445 cases, which also included those that required tracheotomy and intubation, not treated with the antitoxin, 2017 died, or a mortality of 45.36 per cent.

3. That all the cases recovered in which the antitoxin-treatment was begun on the first day of the disease; that 2.83 per cent. of the cases died in which it was begun on the second day; that 9.99 per cent. of the cases died in which it was begun on the third day; that 20 per cent. of the cases died in which it was begun on the fourth day; that 33.33 per cent. of the cases died in which it was begun on the fifth day; and that 41.38 per cent. of the cases died in which it was begun after the fifth day.

The average quantity of serum administered, hypodermically, was from 1 to 10 cubic centimeters (15 minims to 2½ fluidrams) in mild cases, and from 10 to 25 cubic centimeters (2½ to 6¼ fluidrams) in severe cases.

The injection was made either in the gluteal region or in the back, below or between the shoulder-blades; and if the patient was not better the next day another was given him. The second dose was similar to the first or somewhat smaller. Aronson says that one should not hesitate to give a dose of 50 cubic centimeters (12½ fluidrams) in malignant cases, and Seitz suggests intervals of ten hours between doses. The serum of the immunized horse, Roux claims, is wholly uninjurious to man, even in large doses. Injected under the skin, it is immediately absorbed, without giving rise to any local irritation.

In regard to the employment of the serum as a prophylactic, the following is reported by Hilbert: Of ten children treated with Behring's normal serum, only four contracted diphtheria; of eight treated with the sixfold strength of Aronson's serum, not one contracted the disease; of eighteen treated with the thirtyfold strength of the same serum, two contracted the disease; and of 28 treated with the sixtyfold strength of Behring's antitoxin, one contracted the disease. In the inoculated children who contracted diphtheria the disease pursued a mild

DIPHTHERIA TREATED WITH THE ANTITOXIN.

Reported by	Cases.	Recovered.	Died.	Mortality.	Reported in
Catlin,	1	1	...	...	Medical News, No. 1139.
Brewer,	6	6	...	...	" " No. 1149.
Maclachlan,	1	1	...	...	Brit. Med. Journ., No. 1765.
Mendel,	1	1	...	...	Berl. klin. Woch., 1894, No. 48
Gleason,	1	1	...	...	Medical Record, No. 1253.
Treymann,	1	1	..	...	Deut. med. Woch., 1894, No. 51.
Rembolt,	1	1			
Walker,	1	1	...	...	Lancet, No. 3710.
Macgregor,	1	1	...	...	" No. 3714.
Roué,	1	1	...	...	" No. 3715.
Rice,	2	2	...	...	Brit. Med. Journ., No. 1764.
Frith,	1	1	..	...	" " " No. 1766.
Fowler,	1	1			
Schippers,	1	1	..	...	" " " No. 1767.
Simpson,	1	1			
Lees,	1	1			
Phillips,	1	1			
Pérignon,	1	1	...	...	Journ. des Sci. Méd. de Lille, 1894, No. 45.
Hilbert,	11	11	..	...	Deut. med. Woch., 1894, No. 48
Seitz,	27	26	1	3.70	Therap. Monats., 1894, H. xii.
Hager,	25	24	1	4.00	Centralblatt für innere Med., 1894, No. 48.
Fischer,	34	32	2	5.88	Amer. Journ. Med. Sciences, No. 273.
Borger,	30	28	2	6.66	Deut. med. Woch., 1894, No. 48
MacCombie,	30	27	3	10.00	Brit. Med. Journ., No. 1774.
Lebreton,	242	214	28	11.57	Méd. Moderne, 1894, No. 109.
Rumpf,	91	80	11	12 08	Münchener medicin. Woch., 1894, No. 47.
LeGendre,	16	14	2	12.50	La Méd. Mod., 1894, No. 100.
Kuntzen,	24	21	3	12.50	Deut. med. Woch., 1894, No. 49
Aronson,	192	167	25	13.02	La Méd. Mod., 1894, No. 85.
Virchow,	303	263	40	13 20	Münchener medicin. Woch., 1894, No. 50.
Katz,	128	111	17	13.28	La Méd. Mod., 1894, No. 85.
Moisard,	231	197	34	14.71	Le Merc. Méd., 1894, No. 50.
Bokai,	35	30	5	14.30	Lancet, No. 3714.
Herringham,	18	15	3	16.66	Brit. Med. Journ., No. 1773.
Saw,	6	5	1	16.66	Lancet, 1894, No. 3711.
Caiger,	30	22	8	16.66	Brit. Med. Journ., No. 1774.
Sonnenburg,	95	79	16	16.84	Deut. med. Woch., 1894, No. [50.
Washbourne, Goodall, and Card,	72	58	14	19.44	Brit. Med. Journ., No. 1773.
Welch,	5	4	1	20.00	Med. News, Nos. 1140, 1142.
Behring and Kossel,	30	24	6	20 00	La Médecine Moderne, 1894, No. 85.
Caillé,	9	7	2	22.22	Amer. Medico-Surgical Bull., 1894, No. 23.
Roux,	448	339	109	24.30	Wien. med. Presse, No. 38.
Widerhofer,	100	75	24	24 00	" " " No. 52.
White,	32	24	8	25.00	Medical News, No. 1140.
Weilger,	63	46	17	27.14	La Méd. Mod., 1894, No. 85.
Wassermann, Ehrlich, and Kossel,	220	154	66	30.00	Deutsche medicin. Woch., No. 16, xciv.
Von Ranke,	36	25	11	30.55	Münchener medicin. Woch., 1894, No. 45.
Körte,	121	81	40	33.05	Berl. klin. Woch., 1894, No. 46.
Maurice,	2	1	1	50.00	Lancet, No. 3713.
Romer,	1	...	1	100.00	" No. 3715.
Browne,	8	2	6	75.00	Med. Press & Circ., No. 2905
Wakeling,	1	...	1	100.00	Brit. Med. Journ., No. 1766.
Totals,	2740	2230	509	18 54	

course and terminated favorably. It is also reported that of seventy-two brothers and sisters of affected children to whom a small dose was given, only eight were attacked with diphtheria; and that of thirty-eight brothers and sisters of patients to whom a larger dose was given, all escaped. Those who received the antitoxin were rendered immune to the disease in a very short time, but it was found that the immunity was not permanent; that it disappeared after a few day or weeks. For preventive inoculation 150 antitoxic units are now recommended; that is, from 2 to 3 c.c. (30 to 45 minims). The serum cured all the cases of diphtheria associated with staphylococci, but only 65.72 per cent. of those associated with streptococci. The latter were found to be especially dangerous.

DIPHTHERIA TREATED WITHOUT THE ANTITOXIN.

Reported by	Cases.	Recovered.	Died	Mortality.	Reported in
MacCombie,	54	47	7	12.96	Brit. Med. Journ., No. 1774.
Borger,	223	177	46	20.62	Deut. med. Woch., 1894, No. 47
Sonnenberg,	116	84	32	27.50	" " " " No. 50
Washbourne, Goodall, and Card,	797	487	310	38.89	Brit. Med. Journ., No. 1773.
Ehrlich,	41	23	18	43.09	Med. Press & Circ., No. 2894.
Katz,	86	48	38	44.18	Lancet, 1894, ii.
Körte,	1266	685	581	45.10	Berl. klin. Woch., 1894, No. 46
Virchow,	230	120	110	47.82	Deut. med. Woch., 1894, No. 50
Von Ranke,	1112	553	559	50.26	Münchener medicin. Woch., 1894, No. 45.
Roux,	520	204	316	60.77	Wiener med. Presse, 1894, No. 38.
Totals,	4445	2428	2017	45.36	

DIPHTHERIA TREATED WITH THE ANTITOXIN ON 1ST, 2D, 3D, AND OTHER DAYS.

1st day.			2d day.			3d day.			4th day.			5th day.			After 5th day.		
Cases.	Cured.	Died.	Cases.	Cured.	Died.	Cases.	Cured.	Died.	Cases.	Cured.	Died.	Cases.	Cured.	Died.	Cases.	Cured.	Died.
6	6		66	64	2	29	25	4	39	30	9	23	13	10	7	3	4
2	2		6	6		7	6	1	2	2		2	2		8	5	3
20	20		4	4		1		1	9	8	1	11	9	2	7	4	3
1	1					29	29								1		1
1	1		30	29	1										6	5	1
14	14																
44	44		106	103	3	66	60	6	50	40	10	36	24	12	29	17	12
Mort. 0			2.83			9.99			20.00			33.33			41.38		

It should be borne in mind that the serum has a destructive effect on the red blood-corpuscles, and that the following secondary effects have been observed in a few of the cases treated with it: Erythema multiforme; an urticarious eruption associated with malaise, glandular enlargement, and paresthesia; pains in knee-joints, ankle-joints, and elbow-joints, and swollen and reddened ankle-joints; a purpuric condition. The secondary effects, however, did not last longer than several weeks.

Although some of the cases which showed a decided improvement in the first two days became gradually worse, and died later of nephritis and cardiac paralysis, it is claimed that these complications in diphtheria are rendered less frequent by the serum or antitoxin treatment.

2029 Q STREET, N. W.

BACTERIOLOGIC EXAMINATION IN THE DIAGNOSIS OF DIPHTHERIA.[1]

BY WILLIAM G. BISSELL, M.D.,
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A GREAT deal has been said on the laboratory-technique and the value of bacteriologic examination in the diagnosis of diphtheria, yet the subject is of sufficient interest and importance to warrant a further explanation of the methods used in culture-examinations. It would seem unnecessary to go into the history of the organism further than to state that it was discovered by Klebs in 1883, and first artificially cultivated by Loeffler in the year following. The germ is generally known as the Klebs-Loeffler diphtheria-bacillus, and it has been fully proved to be the etiologic factor in the production of the disease.

It is generally admitted by all clinicians of experience that it is often impossible to make an accurate diagnosis of diphtheria, either from the clinical history, the anatomic lesion, or from both. There are no constant differences that separate the simple non-contagious forms of inflammation from the diphtheric type, and it is in but a very small proportion of cases that an early and reliable diagnosis can be reached from any data obtainable. This was conclusively demonstrated in the examination of the cases of suspected diphtheria under treatment at the Willard Parker Hospital in New York, where the diagnoses were made by department diagnosticians and confirmed by the best medical talent. Subsequent bacteriologic examination in these cases revealed that from 30 to 50 per cent. were not diphtheria, but maladies of non-infectious character. Appreciate sending a case of follicular tonsillitis to a hospital and having it placed in a ward with diphtheric patients! This person, with a reduced vitality, is exposed to one of the most dreaded diseases when suffering from a malady to which hardly one in twenty-five succumbs.

a. It is in just such cases that an early bacteriologic examination is of the greatest sanitary importance.

Furthermore, it has been proved that in cases in which the Klebs-Loeffler bacillus has been found virulent diphtheria has been transmitted to others,

[1] Paper read before the semi-annual meeting of the Erie County Medical Society, January 8, 1895.

whereas the person carrying the contagion was hardly in a condition to be called ill.

b. It is the systematic bacteriologic examination of such cases that plays a most important part in the advancement of preventive medicine.

Again it has been fully demonstrated that the bacillus of diphtheria remains a varied length of time in the throats of persons convalescing from the disease, even after the disappearance of all membrane and constitutional symptoms. Such persons, if allowed to go at large, are a constant source of infection, transmitting the disease to others, and in this way increasing the prevalence of the malady.

c. It is from the bacteriologic examination in such cases that the greatest practical benefits can be derived.

Early in January, 1893, through the energetic efforts of Dr. Herman M. Biggs, of New York, a communication was addressed to the Health Board of that city, recommending systematic bacteriologic examination for the diagnosis of diphtheria. After some unavoidable delay, bacteriologists were appointed in accordance with the recommendation, with such assistance as was necessary thoroughly to carry on the work. From the time of the inauguration of this scheme those in charge had very little doubt of its ultimate success, but there were a few who doubted its practical efficiency. Several depots were established in various parts of the city, where culture-sets could be procured, and every step was taken to increase the facilities for early examination. Circulars were printed and sent to physicians, asking their hearty co-operation in the movement, and explaining the great necessity for such examinations. During the first few weeks the cases examined were comparatively small, but they have continually increased in number until at the present time the practice is universal.

In order to make clear the methods used in such examination it will be necessary to describe briefly the materials required. The culture-medium most suited for this work is a preparation of blood-serum after the formula of Loeffler. Pure serum is obtained by allowing the freshly drawn blood of a young sheep or ox, contained in a wide-mouthed sterile jar, to remain twenty-four hours in an ice-chest. By that time the fluid part of the blood has separated from the solid portion, and is easily drawn off by means of a pipet. This serum is mixed in proportions of three to one of a 50 per cent. neutral sterile beef-infusion, containing 1 per cent. peptone, 1 per cent. dextrose, and ½ per cent. of common salt. This mixture is then poured into small sterile tubes (putting about 2 c.c. in each tube) and carefully sterilized in a blood-serum sterilizer, at a temperature of about 160° F. The tube is put at an angle during the process of sterilization so that after the coagulation of the blood-serum mixture one will have the greatest possible surface for the planting of bacteria. After these tubes have been rendered absolutely sterile they are ready for use. A sterilized tube containing a swab goes with each culture-tube, and these tubes compose the so-called culture-set.

How to make the primary inoculation is explained by a printed slip accompanying each culture-set. The slip, as supplied by the Department of Health in this city, reads as follows:

DIRECTIONS FOR MAKING CULTURES IN CASES OF SUSPECTED DIPHTHERIA.

The patient should be placed in a good light, and, if a child, properly held. In cases where it is possible to get a good view of the throat, depress the tongue and rub the cotton swab gently, but freely, against any visible exudate.

In other cases, including those in which the exudate is confined to the larynx, avoiding the tongue, pass the swab far back, and rub it freely against the mucous membrane of the pharnyx and tonsils. Without laying the swab down, withdraw the cotton plug from the culture-tube, insert the swab, and rub that portion of it which has touched the exudate gently but thoroughly back and forth over all the surface of the blood-serum. Do not push the swab into the blood-serum, nor break the surface in any way. Then replace the swab in its own tube, plug both tubes with the cotton plugs, and return the culture-set at once to the Health Department.

A report will be given by telephone the following morning, or can be obtained after 12 noon.

As soon as the tubes arrive at the department, that containing the inoculated blood-serum is placed in the incubator at a temperature of 36° C., and allowed to remain until sufficient growth appears to permit of examination. This requires a period of from twelve to twenty-four hours. After the proper time has elapsed a cover-glass preparation is made from the growth in the tube, stained with alkaline methylene-blue solution, and mounted in the usual way with Canada balsam. On microscopic examination of such a preparation with a 1-12 oil-immersion lens—if it is from a case of true diphtheria—the following picture will present itself: A large number of rod-shaped organisms stained blue, varying somewhat in length, about the same size as the tubercle-bacillus, but twice as thick, frequently clubbed and spindle-shaped, and almost invariably irregularly stained, presenting heavily stained segments in a lightly stained background. This is the bacillus of diphtheria.

It is claimed by some that the recognition of the bacillus is extremely difficult, owing to its resemblance to the germ described by Hoffman. It is the general opinion, however, that with thorough examination of the bacterial growth, as described, which has been carefully inoculated according to the rules given, and kept at the temperature of the body, the microscopic examination can be, without doubt, relied upon. Of course, the major-

ity of tubes sent in for examination will not reveal any bacilli, containing simply the common cocci found in the throat. In such cases a positive diagnosis is extremely easy. It was thought at one time that the size of the germ had to do with its virulence, but this is now generally conceded not to be the fact.

Much has been said by some authors as to an organism that by its culture-peculiarities and microscopic appearance is identical with the Loeffler germ, yet does not possess pathogenic properties when injected into susceptible animals. The name given to the organism is the "pseudo-diphtheric bacillus," and, as expressed by Abbott and other prominent workers in this field, it seems certainly to be a misnomer, for it is most possible and probable that this organism is none other than the true diphtheric germ, attenuated in virulence, or, as circumstances have rendered it, a non-virulent diphtheric bacillus.

It would appear to be far better to term "pseudo-diphtheric" those organisms that are enough like the true bacillus to attract attention, yet are distinguishable from it by certain morphologic and cultural peculiarities aside from the question of virulence.

It is a well-known fact that many pathogenic organisms, conspicuous among them being the micrococcus of sputum-septicemia and the so-called hemorrhagic septicemic group, undergo marked variations in the degree of their pathogenic properties, yet such organisms are not designated as "pseudo," but simply the organisms themselves, having become attenuated in virulence.

Loeffler, himself, found the Klebs-Loeffler bacillus present in the case of a perfectly healthy child. Was the germ found virulent? Was it the germ of true diphtheria, or was it the resistance on the part of the patient, the healthy secretions and conditions of the mucous membrane, which lessened its virulence in this particular case? It seems most reasonable that it was the latter. If not, why is it that frequently, on examination of cultures made from the throats of persons taking care of diphtheric patients, one finds the germ present, and yet these persons present no constitutional disturbance. It is because the proper conditions are not present for the development of the disease, whereas others receiving the infection from an attendant might contract the disease in its most deadly form.

There happens in a certain number of cases which clinically are diphtheria, that the first inoculation will fail to show any diphtheria-bacilli. These cases, however, are exceptional, and it is not usually the fault of the bacteriologist that such is the case, because there are certain factors that should be taken into consideration:

1. The inoculation may have been made at so late a period in the disease that it is possible that the diphtheria-bacilli, though now absent, were present at an earlier time.

2. The growth on the culture-medium may be so scanty that it is probable that the inoculation was not properly made, or that some antiseptic had been applied to the throat shortly before obtaining the material for inoculating the tube, sufficient of the antiseptic remaining to prevent growth on the serum.

3. The culture-medium may be badly contaminated and a positive recognition of any one organism be impossible.

4. The serum in the tube may have become too dry before the inoculation to permit of the growth of the diphtheria-bacilli.

In all these cases a second inoculation should be requested by the bacteriologist before giving a definite opinion as to the diagnosis.

Of the primary cultures examined at the Health Department in this city since the 1st of March, 1894, sixty-five were found to contain the Klebs-Loeffler bacillus and ninety-nine were found not to contain that organism. This makes a showing that about 39 per cent. of the cases were true diphtheria.

One case examined during that time of peculiar interest was that in the practice of Dr. Eugene Smith, of this city. Dr. Smith on the 18th of December, 1894, inoculated a tube from the pharynx of a child suffering with a malady characterized by great toxic disturbance, and, as he thought, possibly diphtheria. The tube was sent immediately to the Health Department and placed in the incubator. After twenty-four hours there was no apparent growth on the blood-serum, and a second inoculation was requested. The result of the second inoculation was like that of the first, there being no apparent growth after the twenty-four hours in the incubator. On microscopic examination of the swab it was found to contain a considerable amount of a glistening whitish exudate. Two side-mountings were made of this exudate, one being stained with methylene-blue, and the other by Gram's method. On microscopic examination of these slides there was found to be present an organism having a distinct encapsulation and resembling morphologically the organism described by Fraenkel as being the etiologic factor in the production of pneumonia. The result of the examination was communicated to Dr. Smith. That night the child developed characteristic pneumonic symptoms, and is now convalescing from the disease. The primarily inoculated tubes were left in the incubator, and after the fifth day showed a growth consisting of several small clusters of isolated fine points, growing closely side by side, like those of the diplococcus of pneumonia. Some of the exudate from the swab was inoculated into several mice, and the animals died invariably inside of forty-eight hours of an acute septicemia.

All these points tend to show that the organisms found correspond with the Fraenkel germ, and it is of interest in that it fully explained why development did not occur on the blood-serum during the first twenty-four hours.

As to the points, in conclusion, which may be definitely stated, in relation to the bacteriologic examination in the diagnosis of diphtheria, there are the following:

1. A positive diagnosis of diphtheria can be reached in the majority of all suspicious cases by careful examining of the primary culture, inoculated as described, inside of twenty-four hours.

2. In cases in which the bacillus is not found there is little chance of infection.

3. In those cases in which the diphtheria-bacilli are found the cases should not be considered free from infective powers until subsequent bacteriologic examinations fail to reveal the organism.

NOTE.—During the discussion of this paper by various members of the Society an elderly and trusted physician brought up the old-time question as to whether diphtheria is primarily a local or a constitutional disease. He stated that he "believed that primarily it was always a constitutional disease, with perhaps sometimes coincident local manifestations," *i. e.*, it was always the result of etiologic factors from within the body, and not a primary local affection.

With others I strongly contested this idea, and a heated argument ensued. Bacteriologists and men of experience should discuss this question in the current literature.

186 ALLEN STREET.

LOCAL OR GENERAL TREATMENT IN GONORRHEA?

BY J. HENRY C. SIMES, M.D.,
OF PHILADELPHIA, PA.

THOSE who have given any attention to the treatment of gonorrhea cannot have failed to notice that during the past year or two there has been a tendency for surgeons to advocate the internal treatment and to discard the local treatment. This has impressed me as being very singular, when taken in connection with the views advocated as to the nature of the affection, and I am not able to reconcile the one with the other. All, with very few exceptions, are now advocates of the theory that the affection is of a local nature, having for its etiologic factor a local irritant. Such being the case, one naturally is astonished to find that the treatment of the lesion has taken a direction contrary to that which the pathology of the disease would seem to indicate. That is to say, does it not seem more reasonable—indeed, is it not one of the first principles of treatment, to remove the cause, and to accomplish this as rapidly as possible? Therefore if it is admitted that the lesion is not only local, but also dependent upon a local cause, and the location is amenable to local treatment, is it justifiable to neglect the local and adopt the internal or general treatment?

Before answering this question it is not to be forgotten that gonorrhea, like all the acute contagious diseases, has a certain course to run, and tends to recovery, but also, like this class of affections, it is more or less modified by treatment, which may lessen its duration and prevent complications; therefore, the recovery of the patient is not always to be credited to the method of treatment; rather in many cases the disease is cured in spite of the treatment.

As to the employment of internal treatment in gonorrhea, and the condemnation of local treatment, I find that, in the majority of cases, it is stated that the latter method is more likely to occasion some complication, and in this way lengthen the duration of the attack, while the former is said to be free from this objection. To say that any method of treatment in a case of gonorrhea will or will not be followed by some complication would, indeed, be very foolish, as there is no disease in which the prognosis is so very uncertain, not so much on account of the method of treatment adopted, but more on account of the treatment the patient himself has, contrary to advice, adopted. This aside, however, it remains to be asked, Does the local treatment, the method by injection, in gonorrhea tend to occasion complications? My experience has most certainly taught me that it does not; but its abuse may, and undoubtedly will give rise to complications the same as the abuse of internal remedies will also cause complications. The mucous membrane lining the urethra is a very delicate structure, and it is to be treated with much care, especially when in an inflamed condition; therefore, the object should be to allay all irritation, and make no application that may possibly increase its irritability. If this is always remembered when treating a case of gonorrhea, there may be no anxiety as to the method of treatment giving origin to any complication. Again, it is important to remember that the strength of the injection is not always to be the same for all cases, nor the same for all stages of the attack, nor is the same medicinal remedy admissible in all cases, or during all stages of the same case, but must vary according to the judgment of the surgeon.

Those who advocate internal treatment in cases of gonorrhea very justly claim that this method is not in truth a general method of treatment, but a local one. This must be admitted; it is local to

the extent of the medication being secreted by the kidneys, and of its being mixed with the urine. Thus the medicated urine is a local application to the affected part of the urethra. Notwithstanding this fact, is it not a very roundabout way to accomplish what can be done in a much more satisfactory manner by a direct application to the diseased part? If a somewhat analogous treatment of the same affection, when it attacks another organ of the body, were adopted by the surgeon, the result would be most disastrous. I refer to the treatment of a case of gonorrheal ophthalmia, in whch the neglect to adopt a local method of treatment would certainly not result in adding to the reputation of the surgeon, and the uncontrolled progress of the disease would most probably occasion destruction of the organ. We have the same disease attacking similar anatomic structures, viz.: gonorrhea and a mucous membrane, and experience has taught in one that the best results are obtained by local therapeutics, while in the other there remains a doubt. To my mind such a doubt ought not to exist. If the local treatment of a case of gonorrheal ophthalmia is found to control the disease and prevent destruction of the organ, and to do this more quickly and more certainly than any other method, why is not the same method applicable to the same disease when it attacks the mucous membrane of the urethra? That the anatomic relations of the two organs are not analogous is undoubtedly true, but their anatomic structure is very nearly analogous, and a method of treatment that is admitted to be most efficient in one should be, and for myself is, applicable for the other.

The internal treatment of gonorrhea, it must be admitted, has a controlling and beneficial effect over the disease. It is a method to be recommended, and one that will show good results; but the local method by injections I have found superior in its results, and it is certainly more reasonable when the nature of the lesion is considered. Many surgeons have come to the conclusion that both methods are to be recommended, and that a combination of the two is the most desirable method of treatment. There is, of course, no objection to adopting this plan, except, I think, that one thus uses unnecessary medication, which is always to be avoided, and he may in very many cases occasion the patient considerable discomfort by the administration of internal remedies, as the drugs that are given in these cases are, as a class, most disagreeable to the taste, and frequently disagree with the digestive organs. Further, and most important, is the fact that the effect upon the disease by this double method of therapeutics has not, in my experience, been in any way of advantage; the duration of the attack has not been shortened and a modification of the symptoms has not been noticed.

It is to be understood that in advocating the local treatment of gonorrhea I do not propose to exclude entirely internal medication. Laxatives, diuretics, alkalies, all have their place, and are very valuable adjuncts; but it is to the employment of the so-called specifics, and the neglect to use proper local applications, that objection is made.

2033 CHESTNUT STREET.

CLINICAL MEMORANDA.

A CASE OF LATE SYPHILIS SHOWING UNUSUAL LESIONS OF THE SKIN.

BY J. ABBOTT CANTRELL, M.D.,
OF PHILADELPHIA, PA.;
PROFESSOR OF DISEASES OF THE SKIN IN THE PHILADELPHIA POLYCLINIC AND COLLEGE FOR GRADUATES IN MEDICINE, DERMATOLOGIST TO THE PHILADELPHIA HOSPITAL AND TO THE SOUTHERN DISPENSARY.

THE appearance of syphilis of the skin, especially when this occurs in the later stages of the disease, the so-called tertiary period, is likely to be manifested so often in very peculiar or even grotesque forms that it is just as likely to resemble some other disease of the skin as the one that has been the real cause of its appearance, and so much does this affection vary that I believe the record of such a case will be appreciated.

The patient, a female, forty years of age, presented herself for treatment at my dispensary service, at the Philadelphia Polyclinic, on the 27th day of March, 1894. She stated that the eruption had existed for the previous seven years, and that it gave her no trouble other than by its appearance. Her family history, as well as her own personal history, seemed to be very fair, and she, furthermore, did not remember ever having had the initial lesion of the disease. The woman was married at the age of twenty-three years, and is the mother of three living and healthy children, all of whom have remained in good health to the present day. Their ages are fourteen, twelve, and nine years respectively. She furthermore affirmed that she had never miscarried, and that the previous births were all natural in delivery, and that she had had no trouble after the births.

The lesions, nine in number, were situated on the extensor surface of the right forearm, and scattered at irregular intervals between the elbow and three inches above the wrist. At the examination the arm was placed with the elbow in the patient's left hand, and the hand of the affected arm at the right shoulder. The first lesion to be described was three inches from the wrist, and was situated with the median line of the forearm running through its center, the lesion extending to within about three-quarters of an inch of either border of the forearm, measuring in itself from one end to the other about one-and-one-half inches, and was shaped like a sickle, the blade being toward the radial side of the forearm, and about one-and-one-half inches long on the curve of its upper border, and from one-eighth to one-quarter of an inch wide. The "handle" was on the ulnar side, and about three-quarters of an inch long, and from one-

quarter to three-eighths of an inch in width, taking a downward course toward the inner border of the forearm. At the highest point of the curved portion a fissure ran directly across the lesion, from which a slight discharge of pus was noticeable; the borders of the fissure were irregular.

The second lesion was directly below the first, with about one inch of healthy skin intervening. It was irregularly crescent-shaped; measuring from the highest point to the lowest, it was about one inch in length, and one-eighth inch in width. Its lower half comprised the larger portion, being three-eighths of an inch in width and one-half inch in length across the forearm. From the ulnar side of this lower portion it took an upward course, curving around toward the radial side for a distance of three-quarters of an inch, and was from one-eighth to five-sixteenths of an inch in breadth.

The third lesion was circinate in character, and was diseased throughout, being one-half inch in diameter. It was located on the radial side of the forearm, and about one-half an inch from the median line, and one inch from the outer border of the forearm.

The fourth lesion was parallel with the third, and was the largest and most irregularly shaped of all. It began at a point marking the radial side of the forearm and about five inches from the elbow, running diametrically toward the wrist for about three-eighths of an inch, and being from one-sixteenth to about one-eighth of an inch wide. At this point it widened out and ran horizontally across the forearm for about one-and-five-eighths of an inch, being three-eighths of an inch wide at the beginning of the latter portion (at which point was situated a large tubercle, fissured horizontally) and abruptly diminishing in breadth to from one-eighth to one-quarter inch for its entire remaining length. At the point ending the described portion, which was one-quarter inch from the border of the forearm, the lesion extended obliquely downward and inward toward the median line of the forearm for a length of one-and-one-eighth of an inch, then turned upward and pursued its course obliquely toward the median line for five-eighths of an inch to within one-half inch of its beginning point. The tissue was seemingly healthy and almost enclosed within the described lesion.

The fifth lesion, which was pear-shaped, and lying horizontally, with the apex toward the median line, was two inches below the third lesion and three-quarters of an inch from the median line. It consisted of two tubercles, one five-eighths of an inch in diameter, ovoid in shape, and one one-quarter of an inch in diameter and circinate; they were joined together, the smaller one being toward the median line.

The sixth lesion was one-quarter inch from the head of the ulna, and the same distance from the outer border of the forearm, its lower edge being parallel with the center of the head of the ulnar, and somewhat semi-circular in shape. The point nearest the ulna consisted of one large tubercle, ovoid in form, and about three-eighths of an inch long. From the lower part of this tubercle it curved outward, upward, and inward for a distance of about one inch, forming the remainder of the semi-circle and being one-eighth of an inch in width and quite irregular in form.

The seventh, eighth, and ninth lesions were on the ulnar side of the forearm and slightly above the elbow, and one-quarter of an inch from the outer side. They were discrete, although the lesion nearest the inner side of the arm was apparently made up of two lesions that had coalesced. These three lesions were each in itself a tubercle varying from one-eighth to one-quarter of an inch in diameter.

PROLAPSE OF THE LARYNGEAL VENTRICLE.[1]

BY WILLIAM S. JONES, M.D.,
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CHIEF OF LARYNGOLOGICAL DEPARTMENT OF THE JEFFERSON MEDICAL COLLEGE HOSPITAL.

THE orifices of the ventricle of the larynx are situated between the ventricular bands and the vocal bands, and extend nearly the whole length of the latter. The sac of the ventricle extends upward between the ventricular band and the thyroid cartilage. Its depth varies greatly in different persons. The position of the ventricle is such that there is only a very little strain upon it, even in violent coughing, and probably a person, to have a prolapse from any cause, would have to be in a weakened or neurotic condition producing a relaxation of the muscles and mucous membrane of the larynx.

Mr. R. S., aged thirty-five years, consulted me regarding an impairment of his voice, of four months' duration. On inquiry I found that his family history was not very good, one brother having died of lung-trouble, the family generally being neurotic and the patient particularly so. No other constitutional or acquired disease was manifest. As to the cause of his dysphonia, I found that while attending a game of ball, at a critical point in the game, his favorites gaining an advantage, he arose from his seat in an excited condition and shouted at the very top of his voice. In a few minutes this yell was repeated. At once he noticed a slight impairment of his voice. This was due to a congestion of the vocal bands, for in a few minutes his voice was in a normal condition. In about two weeks from this time he again noticed a slight hoarseness, and as time advanced his dysphonia gradually increased. On examining the larynx I found a large mass, light red in color, situated just above the vocal band of the left side and resting on it. At the posterior and inferior portion of this mass there was noticed a very tenacious piece of mucus, held in position by the pressure of this mass on the band. This was removed. Never having seen an obstruction of this kind, I was in great doubt as to the diagnosis. The only symptom was dysphonia. Here was a large mass unilateral in location, and without surrounding inflammation or infiltration, and free from ulceration. So the idea of it being syphilitic or tuberculous was discarded. The color and smooth surface excluded angioma and papilloma. The broad base was against the theory of myxoma. Its position, shape, and color did not point to malignancy. It was only after several examinations that I concluded that this could only be a prolapse of the laryngeal ventricle.

In looking up the literature on this subject (of which there is nothing definite), among the few cases I find one reported by Prof. J. Solis-Cohen, and in consultation he confirmed the diagnosis.

[1] Read before the Camden District Medical Society, November 13, 1894.

Now, why was the dysphonia so long in following the cause, if the cause was his hallooing at the game of ball? The ventricle is held in position by the thryo-arytenoid muscle assisted by the attachment of the connective tissue. If its connection with this muscle was severed during a violent strain, the only remaining support would be the attachment of the connective tissue, which would gradually give way with a continued use of the voice until there was a complete prolapse. This would account for the impairment of the voice occurring some time after the cause, also for the increasing dysphonia.

Knowing the cause of this trouble, what is the best treatment? If the ventricle would remain in its normal position, replacement would be the proper procedure. But the condition of its former attachments would be such after four months of displacement that, if reduced, there would be no support to keep it in its normal position. In fact, I have replaced this mass a great many times, only to find that it would return as soon as pressure was removed. The only thing that will restore the voice seems, therefore, to be the removal of the obstruction. This can be done in several ways. The quickest would be by thyrotomy. This the patient objects to. Continued applications of caustics would remove it. The snare might be used in some cases. The cutting laryngeal forceps would also answer.

The treatment I adopted was the electric cautery. I used an electrode made especially for this case, with a shield on the left side to protect the ventricular band. This electrode was placed on the mass at a dark-red heat, and was held there by a slight pressure usually until the patient gagged. This was repeated several times at each visit, under the use of cocain. At first a 10 per cent. solution was used; but this did not have the desired effect, so a 20 per cent. solution was used, which gave the patient perfect control of the larynx. The man's voice now is almost normal. His aphonia has gradually disappeared, and only when he sings is there a slight impairment of the voice.

201 BROADWAY.

A CASE OF DIPHTHERIA TREATED WITH THE ANTITOXIN.

BY CARL FRESE, M.D.,
OF PHILADELPHIA.

THE following case of true diphtheria was treated by the early administration of Behring's antitoxic serum, and the disease ran a remarkably rapid and favorable course.

H. S. G., twenty-three years of age, a male, had felt unwell for three days, with headache and slight pain on swallowing. He was seen by Dr. A. Hand, Jr., on January 15, 1895, at 10 A.M., who found the temperature 99.4°, pulse 85, and the face slightly flushed. The man complained of pain on swallowing. Examination of the throat revealed small patches of membrane on the pharynx behind both pillars of the fauces. The right tonsil was covered uniformly with a smooth, yellowish membrane. The breath was exceedingly offensive. The gland below the angle of the jaw on the left side was painful and enlarged; that on the right side was tender only. From bacteriologic tests Dr. A. C. Abbott reported on the 15th, at noon, that he had obtained a pure culture of Klebs-Loeffler bacilli.

On the afternoon of the 15th the temperature had risen to 102°, the pulse was 105; there was violent headache, the face was very flushed, there was great nervous depression, and thick membranes existed on both tonsils. Six-hundred normal antitoxin-units of Behring's serum were injected in the hypogastric region at 5 P.M. Just before the injection another culture on blood-serum was taken, and this, after twenty-four hours, was shown to be a pure culture of Klebs-Loeffler bacilli. No change was observed late at night except that the headache had abated a little. On the 16th, in the morning, the membranes were about the same, though the general condition was much better. The temperature was now 99°. In afternoon improvement was marked, the tonsils being devoid of membrane, and on the pharynx only a few little patches persisted. On the 17th the general and local symptoms showed still more improvement, and on the 18th the patient was apparently cured, the tonsils and pharynx being quite free.

The patient had given the impression as of a severe infection and grew rapidly worse until a few hours after the injection of the antitoxin, which seems therefore to have arrested the further development of the disease. The bacteriologic report from two independent sources (University of Pennsylvania and German Hospital Bacteriologic Laboratories) make the diagnosis of true diphtheria absolute.

A friend rooming with the patient felt unwell on the 15th and complained of soreness of the throat, which was very red, but had no membranes. In the afternoon ten drops of Behring's serum were injected. This gentleman nursed his friend night and day, and although he was run down, he developed nothing further, and his sore-throat disappeared a day after the injection. It seems very probable that this patient was immunized by the small dose administered.

No swelling or symptoms of inflammation developed in either case at the point of injection. Local tenderness persisted for two days in the second case, while in the case of developed diphtheria it disappeared within twelve hours.

GERMAN HOSPITAL.

PATHOLOGIC NOTE.

DIMINUTIVE LIVER FROM AN INFANT.[1]

BY AUGUSTUS A. ESHNER, M.D.,
ADJUNCT PROFESSOR OF CLINICAL MEDICINE IN THE PHILADELPHIA POLYCLINIC.

THE liver that I have the privilege of presenting has been placed in my hands by Dr. R. E. Müller, of this city, who has also kindly furnished me with such clinical and pathologic data as were attainable. The specimen came from a male infant delivered at term with forceps, after a labor lasting forty-eight hours, and weighing seven pounds one ounce at birth. The mother was a German, thirty-two years old, with a justo-minor pelvis, who had led a dissolute life for many years, but denied that she had ever previously been pregnant. She had

[1] Presented to the Philadelphia Pathological Society, January 10, 1895.

been in the habit of lacing tightly, even during the pregnancy. There was no history of syphilis or tuberculosis. For the first two days of life the infant was fed on sugar-water, as the mother was unwilling to put it to breast on account of sore nipples. On the third day the child was given the breast, but it refused to nurse. It was then fed with sterilized milk sweetened with milk-sugar. Forty-eight hours after birth the face and chest of the child were observed to be icteric, and soon afterward the conjunctivæ and the extremities also. An effort was made to collect the urine for study, but without success. The stools had a greenish color on the second day. The child wasted rapidly, and died on the eighth day of life. The umbilical cord had been carefully ligated, and the ligature had not fallen off.

At the post-mortem examination it is said that no abnormality was found, save the general icteric discoloration of the tissues and the diminutive size of the liver. The ductus venosus was patulous. The dimensions and weight of the organ were not noted at the time of its removal, but after having been preserved in alcohol for some time the transverse diameter was found to be 3½ inches, the antero-posterior diameter 2¾ inches, and the vertical diameter 1¾ inches; the weight was two-and-one-quarter ounces.

The specimen appears to me a unique one. I have been unable to find a reference to a parallel observation. In conformation, in fissuration and lobulation, and in histologic structure it presents the appearances of a normal viscus, its only peculiarity, so far as I can discern, consisting in its striking diminutiveness. Malformations of the liver are said to be, on the whole, rather uncommon. Ziegler states that the liver may be entirely absent, though rarely. Although the liver progressively increases in size from the period of its first appearance in the process of development, its relative size, as compared with the weight of the body, begins early to diminish gradually and progressively. Thus, in the first month of fetal life the weight of the liver represents one-half of the entire weight of the body; at birth the ratio is 1 : 18 or 20, and in adult life from 1 : 36 to 40. In the specimen presented this ratio is 1 : 50. I have been unable to obtain any satisfactory figures as to the dimensions of the liver at various periods of development. At birth the organ is said to extend almost to the level of the umbilicus. The average figures for the adult liver are: For the transverse diameter, 11 inches; for the antero-posterior diameter, 7 inches; and for the vertical diameter, 2.5 inches. The weight of the adult liver is from fifty to sixty ounces. In this specimen the right lobe is the larger, as it should be normally at birth and thereafter. Until the fourth month of fetal life the two lobes are of about equal size, but after this the left is the smaller. The comparatively large size of the liver in the fetus is ascribed to the large supply of blood sent through the organ from the umbilical vein.

I am at a loss for an explanation of the abnormality of size in the specimen presented. I am scarcely willing to make the tight lacing the active factor.

The Fifth District Branch of the New York State Medical Association will hold its eleventh annual meeting in Brooklyn on May 28, 1895. All Fellows desiring to read papers are requested to notify the Secretary, Dr. E. H. O. Box 760, Brooklyn.

MEDICAL PROGRESS.

On Local and General Immunity.—As the result of an investigation based upon experimental erysipelas in animals, together with some observations on the mode of growth and the life-history of the *Streptococcus erysipelatis*, COBBETT (*Journal of Pathology and Bacteriology*, vol. iii, No. 1, p. 38) has found that cultures of the streptococcus cease to grow in beef-broth after three or four days, the majority of the cocci dying a few days later; a few remain alive and capable of producing a new growth when sown on new culture-media, for ninety days, and probably longer. The cause of the cessation of growth in beef-broth is an exhaustion of the nutrient material, and not the production of a bactericidal substance. Cultures of the *Streptococcus erysipelatis* maintain their virulence when grown on solid media, but become greatly attenuated when grown in beef-broth. The virus that has become attenuated by cultivation in beef-broth may be intensified by growing in the bodies of animals. The injection of streptococci or their products into the abdominal cavity confers immunity to a second injection, in the same situation, of more virulent cultures in quantities fatal to control-animals. Cutaneous erysipelas completely protects the parts directly affected against subsequent inoculations of the virus—in other words, it confers an absolute local immunity, while on the rest of the body it confers a general immunity, which is less constant, sometimes protecting completely, at other times modifying the course of the disease, while in some instances it is entirely absent. Intra-abdominal injections of attenuated cultures of streptococci confer a somewhat more perfect immunity upon the rest of the body. Both local and general immunity are of short duration, and do not last more than a few weeks. When streptococci are introduced into the ears of rabbits protected by recent erysipelas an inflammatory reaction quickly appears, and has already subsided before inflammation has made any considerable progress in the control. The rapidity of the onset and the intensity of this inflammatory reaction are most marked in ears locally protected, less marked in those that share in the general immunity produced by erysipelas in the opposite ear; that is to say, it is proportionate to the immunity observed in these three classes of cases. A similar difference in the inflammatory reaction of immunized and normal parts is observed when filtered cultures or dead streptococci are introduced. This power of quickly reacting is an important factor of immunity, both general and local. This same power of reacting is acquired during the course of the disease and is the cause of recovery.

End-to-End Union of a Divided Vas Deferens.—W. J. MAYO and C. H. MAYO (*Annals of Surgery*, vol. xxi, No. 1, p. 35) have reported the case of a man, twenty-two years old, who for three years had suffered from a large varicocele of the left side, and who, six weeks before coming under observation, had received a severe kick, by which the tissues of the spermatic cord were badly injured. He presented a painful enlargement of considerable size, involving the whole of the structure of the cord, separated by a space of an inch from the testicle below, which was somewhat enlarged.

A free incision revealed a mass of injured veins, with an acute angle in the vas deferens, which had been lacerated and was occluded. The cord was completely resected, including an inch-and-a-half of the vas deferens. The stumps of the cord, exclusive of the vas deferens, were ligated with catgut, and the ligatures knotted together, thus raising the testicle to a higher level. A round intestine-needle, threaded with a strand of No. 4 catgut, was pushed into the lumen of the lower end of the severed vas deferens about three-quarters of an inch, and turned out through its walls laterally, drawing the catgut through. The needle was unthreaded and re-threaded upon the opposite end of the vas deferens three-quarters of an inch, and turned out through its lateral wall. The two ends of the vas deferens were now slipped together along this internal splint, like beads on a string, until they met end to end. Knots were tied on the catgut at each point of emergence from the vas deferens to form a shoulder and prevent slipping with separation. The wound was closed without drainage, and healed promptly. The patient was dismissed in eighteen days with the testicle in its normal condition. On re-examination, a month later, the result was found to be perfect.

Hemophilia at the Onset of Menstruation.—OLIVIER (*Journal de Médecine de Paris*, 1894, No. 31, p. 379) has reported the case of a girl, thirteen years old, who had just menstruated for the first time, the discharge at first being slight, but subsequently becoming so profuse as to threaten life. All other measures failing, the vagina was tamponed and the flow was moderated. Upon the removal of the tampon, at the end of twenty-four hours, the hemorrhage was resumed with its previous freedom. Vaginal injections of hot water were employed and followed by the introduction of a tampon, but without success.

Upon consultation, the conclusion was now reached that the girl was a hemophilic. It was learned that when a child, she had fallen, injuring the head, and a large ecchymosis had formed beneath the scalp. The removal of teeth at different times had also always been followed by free bleeding.

The following plan of treatment was outlined: 1st, vaginal injections, at a temperature of 122°, every two hours; 2d, if the hemorrhage persisted, galvano-caustic intra-uterine application of 50 milliampères, followed by a tampon; 3d, treatment directed toward the general condition, especially alcohol in some form; 4th, the hourly administration of hydrastinin. In this way it was hoped to control the immediate bleeding. The question also arose as to its repetition in the future. The removal of the ovaries in the hope of obviating such repetition was contra-indicated by the danger of fatal hemorrhage from the operation.

The Enlargement of Subcutaneous Lymphatic Glands in the Tertiary Period of Syphilis.—MONTGOMERY (*Festschrift zur* 25. *Jaehrigen Jubilæum des Vereins Deutscher Aerzte zu San Francisco*, 1894) calls attention to the liability of mistaking the enlargement of the subcutaneous lymphatic glands observed in the tertiary period of syphilis for leukemia or lymphadenoma or tuberculosis. He reports several illustrative cases in which subsidence of the enlargement followed discriminating and persistent use of anti-syphilitic remedies. In some cases of secondary syphilis in scrofulous individuals the lymphatic glands become enormously enlarged and may persist after the antecedent lesions have disappeared.

Strontium Salicylate.—WOOD (*University Medical Magazine*, vol. vii, No. 4, p. 219) has employed strontium salicylate in a large number of cases of various kinds, in doses of from fifteen to twenty grains a day, and has found that in doses of from five to ten grains, given after meals, the salt very commonly improves digestion, and in the dose of five grains an hour after meals, in flatulent dyspepsia and various conditions of tendency to fermentative changes in the alimentary canal, it is a useful antiseptic. It does not produce cinchonism as readily as do the other salicylates, though it is entirely capable of causing a pronounced degree of cinchonism. It was found to be valuable in the treatment of muscular or subacute rheumatism, as well as of chronic gouty conditions with a tendency to digestive disturbances, exerting the action of the salicylate upon the diathesis and improving digestion. The drug may be given in solution, but is best administered in capsules of five grains each, of which two or more may be taken at once.

THERAPEUTIC NOTES.

The Treatment of Diphtheria with the Antitoxin.—GANGHOFNER (*Prager medicin. Wochenschrift*, 1895, Nos. 1, 2, 3) has reported 110 cases of diphtheria treated in the Kaiser Franz Josef Children's Hospital at Prague with the antitoxin, with 14 deaths, a mortality of 12.7 per cent. Of the whole number, 44 required operative relief of laryngeal stenosis, with 6 deaths (13.6 per cent.). Among 144 cases treated in the intervals of antitoxin-treatment and immediately preceding, there occurred 62 deaths (43 per cent.); 67 required intubation, and of these 41 died (61 per cent.). The mortality in previous years with other methods of treatment had ranged from 43.6 to 63.6 per cent.

MORRILL (*Boston Medical and Surgical Journal*, vol. ccxxxii, No. 4, p. 80) has reported the occurrence of three outbreaks of diphtheria in the Boston Children's Hospital and the threatened development of a fourth despite thorough cleansing and disinfection. At this stage systematic employment of the antitoxin was instituted, both in cases of diphtheria and in those of other kind, with the result that in a short time the hospital was free from diphtheria.

In the Treatment of Carbuncle TISCHER (*Festschr. zur* 25. *Jaehr. Jubil. des Ver. Deutscher Aerzte zu San Francisco*, 1894) recommends parallel incisions about an inch apart extending to the subcutaneous connective tissue and on either side into healthy structure, and crossed by another series of parallel incisions at right angles. Subsequently the wound is irrigated several times daily with a solution of mercuric chlorid, dusted with a powder of mercuric chlorid and white sugar, 1 : 1000, and covered with gauze.

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SATURDAY, FEBRUARY 2, 1895.

SUGGESTIONS TO OUR CONTRIBUTORS.

THERE are two reasons why we wish to-day to offer our contributors a few hints in reference to the matter and manner of contributions to medical literature. The first reason is a selfish one, and relates to editorial labor. Many journals keep a standing column of "Notices to Correspondents" concerning the preparation and forwarding of articles; but, despite all reiteration of such advice, it is habitually disregarded, and the same mistakes are repeated in almost every second manuscript sent for publication.

In the hope of calling more marked attention to the matter, we therefore appeal thus directly for the not inconsiderable motive of saving future editorial labor.

But the motives are not wholly selfish, and a second one relates to other editors and to the contributors themselves. We have no doubt that many a worthy contribution to medical literature has failed to reach its proper medium of communication, or has failed to attract the attention it really merited, because of failure in the method of presentation. And very frequently such failure depends fundamentally upon something that the writer considered beneath notice. Editors are very fallible folk, as well as very busy, and the chances of the acceptance of a proffered manuscript containing, perhaps, most excellent matter, are less probable if written so illegibly as to be read only with much weariness to brain and eye; if in the very title *Iliac* is spelled *Illiac;* if the paper is rolled so that it requires four hands to hold it open for reading, etc. We well understand that one noteworthy editorial duty is to look through and past the defective presentation to the real value of the thing presented, and when editors shall have sloughed all imperfection and finiteness this will be done. In the meantime we believe that an article will run the better chance of acceptation by the best journals, it will reach the best class of physicians, and it will be read by a greater number of that class, just in proportion as the writer fastens the following suggestions well in mind, and in writing carries them out.

As in all literature, so in the medical variety, all good writing depends upon good thinking and in having something of value to set forth. Teachers of rhetoric and those untrained in literary labor are very prone to talk about style and the acquirement of style. But this is all folderol. "The style is the man." There is or there should be no such a thing as style in medical writing. The thing to do above all things is to get rid of style. The best style is no style. To think the whole matter out clearly, in advance of putting pen to paper, and then to state it in the simplest, shortest, most uncolored way, is what is most desirable. Every article written with the secret desire to advertise the writer betrays to the trained eye the unmistakable evidences of that secret desire, and by that much lessens the value of the writing. How much more evident must it be if the desire to advertise is the sole motive, when there is little or nothing of scientific value to communicate, and when general haziness of thought is manifest in every line. To have something of use to medicine and to one's fellow-workers about which to write, to think it out thoroughly in advance, and to state succinctly and clearly what this something is—these are the chief secrets of good medical writing.

Brevity is said to be the soul of wit; it is certainly the body of good judgment. There is a story of a great charity-sermon which was at once the most effective and the briefest on record. It consisted of a doubly emphatic announcement of

the text: "He who giveth to the poor, lendeth to the Lord," followed only by the words, "Now, brethren, if you are satisfied with the security, down with the cash!" To say what one has to say perspicuously, without introduction or peroration, and without redundant words, is the aim of a good writer. The contributor is likely to think the editor harsh and autocratic who begs for condensation, who excises useless words, "fine sentences," exordiums, excuses, and all the other things that prevent, not aid, the author in the communication of his thought. But these things are so many obstacles hindering the many from reading. Every word that is useless or that directs the attention to the writing, or to the writer, rather than to the thought and the thing written, is just so much friction-material placed between the two minds. The more round-about the way the longer is it; the more the attention is called to the roadway the less perfect it is. The object of good scientific writing is the transference of thought; the more the reader's attention is compelled to busy itself with the medium of transfer, the less speedily and easily is the transfer itself made.

One of the first laws of the literary decalogue is that a grammatical sentence must have at least a subject and a predicate, and yet we have spent as many as several hours over a single manuscript making sentences conform to this primal commandment. One wonders whence has come the fashion in medicine of reporting case-histories in jerky, meaningless spirts and fragments of sentences, either subjectless or predicateless, usually also articleless and always ridiculous. For example, one receives something like this:

CASE I. A. B. Æt 23 Irish Seen 9th Temp 102½ Pulse 90 Resp 30 Albuminuria mind good great weakening No app Sick 10 days Tubbed Prescribed as usual. 10th, Temp. 101⅘—etc.

Now, when originally written or transcribed from the note-book, why should this not have been translated into the English language? It were quite as easy to write, and certainly more easy to read it, if written somewhat as follows:

CASE I. On January 9, 1895, I was called to see A. B., twenty-three years of age, of Irish parentage, who had been ill for ten days. His temperature was 102.5°, the pulse-rate 90, the respirations 30 to the minute. Albumin was present in the urine. The man's mental condition was good, but there were great physical weakness and loss of appetite. He was given a cold bath, and the usual medicines were ordered. On January 10th, the morning temperature was 101.4°, etc.

We could fill an entire issue of THE NEWS with suggestions as to matters grammatical, but we fear it would be useless, and it might be considered in ill-taste. The world will doubtless end before even the best writers will learn the proper and discriminating uses of *that*, *which*, and *who*, the right and sufficient use of compound words, the function of hyphens, as well as of other punctuation-marks, and a hundred like things. We wish, for instance, very much that people would not use *where* when it does not express their thought, and when *in which* or *when* does express it. There are dozens of little manuals that will give one who seeks stores of useful information in all these things, and the time spent in their study is never lost. Terseness and perspicuity of thought are largely products of the diligent study of the right use of language. If one writer more than another may be commended, we would, as a model, direct attention to one whose vigor and originality of thought were universally admired, one whose pen, alas! is now forever at rest. Few knew the scrutinizing care bestowed upon his sentences by that master of medical English, Dr. WILLIAM GOODELL. The limpidity and force of his words and sentences seemed so spontaneous and natural that one can hardly believe the pains he took with almost every one. He knew well enough that language is the maker as well as the servant of thought. The effort to be scholarly, to use fine language, to be "highfalutin," is the bane of many writers. To write as one would speak, simply, in short sentences, in clear, clean, old-fashioned Anglo-Saxon is the "one thing needful."

Lastly, why not be modern, scientific, crisp, American? As to chemic nomenclature and spelling we would refer our readers to the suggestions made in THE NEWS of June 17, 1893, p. 660; of December 24, 1892, p. 722; and of August 22, 1891, p. 221. Progress in philology is as inevitable as progress in therapeutics, and the fetichistic clinging to antiquated usage in one is as nonsensical as it is in the other.

Contributors sometimes feel hurt because their manuscripts are not accepted, but there are a large number of reasons besides lack of merit that often compels the rejection. If THE MEDICAL NEWS were many times its present size it would be impossible to find space for the great mass of material offered.

Much must, therefore, necessarily be returned. But apart from this, a paper cannot, perhaps, be accepted because, for example, we have already accepted or have published as many articles on a particular subject as, for variety's sake, is advisable; because it is an article of interest to the specialist alone (and THE NEWS is a journal addressed to the general physician) or to a limited circle of readers; because while good of its kind it is too much a restatement of known or accepted truth without positive addition to medical science, etc. Then some manuscripts are at once seen to require for proper presentation such a frightful amount of "editing," so many elisons, inversions, additions, and corrections that the poor editor would evidently get no time to sleep should he do his duty to the essay and its author, with the added probability that the author would consider that his writing had been utterly spoiled, and thereafter would he be forever angry, instead of duly grateful, as he should of course be.

If every article were published simultaneously in each of the 234 American medical journals, how useless would become all of the journals except one, and how absurd would be that much manifolded article! There is hardly a week that either, through inadvertence or a most remarkable peculiarity of mind, copies of one and the same article are not received by many journals, as if for the exclusive use of each. Sometimes the titles or a few lines of introduction are changed so as to make it appear at first glance as a different article. One journal publishes it first, the others have the trouble of editing and the expense of type-setting and of proof-reading, after which it has, of course, to be "killed," because it has appeared elsewhere first. One hesitates to characterize such a proceeding in deserving and plain English; it is certainly exasperating in the extreme. It may be due to gross stupidity, or to flagrant trickiness. In the case of THE MEDICAL NEWS, which pays for contributions, it is doubly dishonest; but in the case of every journal of character it is culpable deceit, to say the least. The editor proceeds upon the thousand-times repeated understanding that articles contributed are for the exclusive use of his journal. It is this singleness of publication that gives the article value both for the journal and, if he but knew it, for the author also. What value would an artist's pictures have if he painted a dozen exact copies of each original? What would be thought of that artist's honesty if he did so?

THE MEDICAL NEWS gives for articles either 250 reprints or a cash credit. It does not give both, and it is necessary for contributors to choose which they prefer. When no preference is expressed, it is understood that the credit is desired instead of reprints. It is remarkable how frequently writers request or suppose that their article will appear "in the next issue," forgetting how impossible that would be, and how unjust it would be to others whose papers have been previously accepted. As a little detail of business, it is not always convenient for remittances to be made the exact instant following publication. About once in three months would seem to be reasonably frequent to make up the accounts.

There is the illegible hand-written manuscript, and there is the type-written manuscript, with the medical and orthographic ignorance of the type-writer glaring in every other word. The long-suffering editor hardly knows which is the worse. Type-writers, of course, cannot be supposed to acquire as a part of their stenographic education a knowledge of medical nomenclature and science; neither has the machine been invented that will mechanically spell our remarkable medical terms with infallible correctness. If the type-writer is used, the physician should revise her, his, or its work with his medical understanding; and if the manuscript be really manu-script, chirography and punctuation should be deemed matters worth careful consideration.

Writers should use good paper, say 8 x 10 inches in size; there should be a full inch of blank space at the left-hand side of the page, and the lines should not be too closely written. Very few writers "paragraph" correctly, and editors, therefore, much prefer that this be left as a part of the editorial work. Write "solid," putting all foot-notes immediately in the next line below that containing the asterisk, and proceeding with the text when the foot-note is completed. Draw a vertical line opposite the foot-note in the blank space at the left. If one has a drop of the milk of human kindness in his veins, he will not write on both sides of a sheet of paper, and he will not roll his manuscript. Mail if possible without folding; but if necessary to do so, fold it once, or not more than twice. Having had a single experience, both editors and publishers are thereafter afraid of a man who rewrites his article on the galley-slips.

EDITORIAL COMMENTS.

Priority Claims.—Some time ago we commented upon the mental and moral condition of the "priority-killer"—by which term we meant one that seeks to invalidate the just right of another to the honor of having discovered a new truth or of having devised a new procedure in medicine. There is, of course, a lack of dignity in asserting too often and too loudly one's own claim as a discoverer. But there is something positively disgusting in trying to rob another of his proper meed of honor in this respect, and when such covert attempts are in progress one is justified in making his own relation to a discovery clear and evident. The ignominiousness of the one who seeks to minimize, dispute, or steal the priority-rights of another consists in the method in which it is done, in the fact that the secondary claim cannot rob the discoverer of *all* his due, and in the fact that the secondary claim lacks the absolutely essential proof of the printed account preceding in time that of the primary claim. We are all wise after the event. After one has published a discovery any other who says, *I did this, or knew this years ago*, is guilty of a lack of generosity and of a culpable desire to steal another's merit. Even if discoverer No. 2 had, in truth, independently discovered or devised the thing prior to the publication of No. 1, the fitting thing for him to do would be to "keep mighty still," unless he can prove it by better means than *ipse dixit* and by "patients." Even stupid minds quickly recognize the devious ways of professional jealousy. One smiles when a writer solemnly describes "an old method" he has used in his private office "for twenty years," or "for many years," and then goes on to say, "This is essentially the same as the excellent method recently promulgated by so-and-so," etc.

We started out to describe a recent illustration of the procedure in question. As all surgeons now know and admit, to Dr. J. William White, of Philadelphia, belongs the honor of priority in devising and scientifically establishing the value of orchectomy as a radical means of cure in enlargement of the prostate gland. If the principle of eponymic nomenclature were ever justifiable, it is in this case, and we doubt not that the operation in question will be known as *White's operation* so long as personal nomenclature obtains. But an English surgeon has had the bad taste to speak of the operation as follows:

"As frequently happens in such cases, the same idea appears to have occurred more or less definitely to many people almost at the same time. In November, 1892, I discussed the advisability of the operation with a patient, who, though he admitted the force of the arguments in favor of it, not unnaturally declined it on the ground that it must be of the nature of an experiment. In 1893, in an admirable paper read before the American Surgical Association, Professor White, of Philadelphia, summed up all that was known in favor of it, admitting that he had, as yet, formed no convictions upon the subject," etc. [Moullin, *Enlargement of the Prostate.*]

Now several things are to be noted in this excerpt: 1. There is no disputing the fact that the same idea *may* occur to several people at the same time; but the point is, did it, in this instance, occur to several? Proof is necessary. 2. Why the expression, "to *many* people?" It is only a question here of *two* people. 3. Why not produce even the *patient's* affidavit? 4. The word *admirable*, as applied to Dr. White's paper, is fine. To filch priority and detract attention by such flattering adjectives as *excellent, admirable*, etc., is simply detestable.

The same characteristics appear in a letter to the *British Medical Journal* of January 12, 1895, in which Mr. Moullin says:

"Those who impute motives to others are seldom quite correct, and Professor White is no exception to the rule. It is, of course, annoying to Professor White to find that an idea which he thought peculiarly his own had occurred independently to others (who were acquainted with John Hunter's work), and had already been successfully put into practice by Ramm, but it is none the less true. As I have already answered Professor White fully elsewhere, I must decline to take any further notice of his remarks about me."

The most prominent compatriots of Dr. White's critic, such as Lister, Treves, Buckston Browne, MacMunn, and others, as well as a very large number of Dr. White's own countrymen, do not admit that Mr. Moullin has by any means either established his own claim or in the least invalidated that of Dr. White. All he has done is, disastrously for himself, to illustrate an unworthy and too common characteristic and practice. The best thing now for him to do, as he has evidently recognized, is to retire too late into the pompous dignity and reserve from which he should never have emerged.

A Climatologic Investigation by the United States Government.—The influence of climate both in the production and in the treatment of disease has long been recognized, and we are glad to learn that an earnest and systematic effort is about to be made under the auspices of the United States Government, through the Weather Bureau of the Department of Agriculture, to gather such data as must ultimately prove of the greatest value to sanitarians in the selection of places of residence with a view to the prevention and cure of disease. The work has been placed in the hands of Mr. Mark W. Harrington, the efficient Chief of the Weather Bureau, who has already in many ways manifested an active interest in the subject of sanitary climatology.

In the official announcement it is pointed out that the study of the climates of the country in connection with the indigenous diseases should be of material service to every community, in showing to what degree local climatic peculiarities may favor or combat the development of different diseases, and by suggesting, in many instances, supplementary sanitary precautions; also by indicating to what parts of the country invalids and health-seekers may be sent to find climatic surroundings best adapted to the alleviation or cure of their particular cases.

The hearty coöperation of the various boards of health, public sanitary authorities, sanitary associations and societies, and of physicians who may feel an interest in the work, is asked, to the end of achieving and perfecting the aims of this investigation.

It is proposed to send, free of cost, the publications of the Bureau bearing upon climatology and its relation to health and disease to all those who assist in the work.

Coöperation will consist in sending to the office of the Chief of the Weather Bureau of the United States De-

partment of Agriculture, at Washington, D. C., reports of vital statistics from the various localities. That these reports may be of value, they should be accurate and complete, and be rendered promptly and regularly. Accordingly, blank forms of reports have been prepared so as to occasion as little trouble and labor as possible on the part of the reporter, and will be furnished by the Bureau on application. It is pointed out that at the very beginning of the investigation it is not possible to outline precisely the channels through which the results obtained will be made public, but it is hoped to publish soon a periodical devoted to climatology and its relations to health and disease. The publication will probably resemble in size and general appearance the present *Monthly Weather Review*, the subject-matter being, of course, different.

English at the United States Military Academy.—From the interesting Report of the Board of Visitors of the United States Military Academy we learn that out of 1375 hours of study in three years, devoted to modern languages, 294 are given to English, and the entire remainder to Spanish and French. German is entirely omitted. The committee was "rather painfully impressed in the examinations with the halting English of a number of the cadets." The recommendation of the committee is that some of the time given to other studies be given to English—a plan that would seem most desirable. But better yet is their suggestion that the standard of entrance-requirements be elevated. We surmise that the difficulty lies in the use of the Academy by Congressmen to get schooling for the boys of their friends at home. Concerning faulty education in the mother-tongue, this grave fault lies at the door of very much of our so-called education. There is a sad straining after the showy and the *omne ignotum* rather than an attempt to render effective the use of our own language. We have known pupils to study rhetoric, trigonometry, French, Latin, etc. etc., when they could not spell ten common English words correctly. Concerning the elevation of the entrance-standards the committee says:

"This would only require probably six months more of study before entering the Academy, and would provide very much needed time for English, history, ethics, hygiene, and possibly for German.

"It is urged that this will cut off some poor boys who otherwise might enter, and even graduate. Even were this true, it would be better to cut off a few ill-trained poor boys entering as officers than by a less thorough training of the whole corps of cadets to expose the thousands of poor men in the ranks to the evils of poorly equipped officers. But West Point exists neither for the poor boy nor the rich boy, but to give the country the very best and most efficient officers to command its Army, upon which often depends security of life and property, public and private, in cases of domestic disturbances, and upon which must always absolutely depend victory in time of foreign war. No officer can be too well trained for such a command. It is very easy to provide officers too poorly equipped, and so invite defeat.

"The increase suggested in the conditions for admission is very moderate. The present requirements were formulated nearly forty years ago, when our public schools were poor and scattered, and the instruction given in them was very limited. This is not true now. The enormous strides in general preliminary education should cause our war college also to make equal advances. The public schools are ready to furnish better students just so soon as West Point will take them."

The Transmission of Typhoid Fever through the Intermediation of Oysters.—The conclusion recently suggested (see THE NEWS, December 8, 1894, p. 641) that typhoid fever may be transmitted through oysters, as based upon the occurrence of an epidemic among the students in a New England University, receives confirmation from the report of analogous occurrence in England. SIR WILLIAM BROADBENT (*British Medical Journal*, January 12, 1895, p. 61) reports quite a collection of cases in which typhoid fever developed in individuals under circumstances in which the infection had to be ascribed to the ingestion of raw oysters. This relation has been suspected in the past, but the evidence was never as conclusive as that furnished by the more recent experiences. The simplest means of prophylaxis, other than abstaining absolutely from the use of oysters, is to have them cooked; but it seems that steps should be taken to prevent contamination of the waters in which oysters are either grown or placed temporarily for their improvement.

EADE (*British Medical Journal*, No. 1777, p. 121) has further pointed out that not alone oysters, but also other forms of shell-fish, as, for instance, mussels, are capable of transmitting typhoid fever. He cites an epidemic of typhoid fever in a community of which the poorer classes were especially affected, and among whom mussels were largely used as an article of food. These fish, being stored in the beds of streams until disposed of by sale, are peculiarly liable to be contaminated and to constitute the means of transmitting the infection.

"***The Missing Link***" has been discovered, and all Darwinians may now in concert exclaim, *We told you so!* DR. EUGENE DUBOIS, of the Dutch East India Army, has found our common revered progenitor in the late Pliocene or post-Pliocene deposits of the island of Java, and he gives this long-sought-for ape-form the fitting name of *Pithecanthropus erectus*, pronouncing it to be the intermediate form between man and the true anthropoid apes. The cranial arch is said to be surprisingly pronounced, falling almost half-way between that of the chimpanzee and that of man, while the cranial capacity approaches to the physiologic minimum of man, and is double that of the gorilla. The femur is the analogue in form and dimensions of that of man, and must have supported an erect body. We are delighted that the matter is settled, so that we may go on with the work of human perfection, knowing at last exactly where our family-tree begins and where we now stand.

Mr. Ernest Hart in India.—That indefatigable traveller and preacher of hygienic morality, Mr. Ernest Hart, has carried the war into India, and has been seeking to hammer into Mahomedan ears and understandings the great lessons of sanitation and preventive medicine upon which not only the health of the Orient but that of the Occident depends. Under the auspices of the Mahomedan Literary Society of Calcutta, and before a large gathering of European and Mahomedan gentlemen, Mr. Hart ingeniously and powerfully pleaded for the extinction of Meccan cholera by the means well known to all civilization

but which are so profoundly needed in the East. For this tirelessness in a noble work the whole world is deeply indebted to Mr. Hart, and we hope his eloquence may not be wasted upon our Mahomedan brethren.

SELECTION.

MEDICAL PROGRESS IN INDIA.

MY period of service, now close on thirty years, has been marked by enormous progress in all directions. Medical colleges, in which a complete education is given in English, have been opened at Lahore, Allahabad, Tanjot, Nellor, and affiliated to the universities. At Haidarabad the classes have been taught in English since 1882. Additional vernacular medical schools for the education of civil hospital assistants and civil medical practitioners are now working at Sealdah, Patna, Dacca, and Katak.

The medical education of women has also been recently introduced, and girls are now trained for the purposes of the Dufferin Fund at most of the medical schools. The number of hospitals and dispensaries open last year was 2025, in which were treated 16,973,468 patients, increases of 76 and 176 per cent. over 1877. There were 4476 operations for stone, 20,279 for cataract. Vaccination has been enormously extended and put on a much more systematic footing; 7,502,024 operations were done, an increase of 62 per cent. These figures indicate great activity and afford ground for congratulation, yet, compared with the wants of the country, indicate that they still touch but the fringe of the population. In Bengal, for instance, only one-fifteenth of the people are within five miles of a dispensary, and a considerable percentage of the children born escape vaccination, so that bad epidemics of smallpox are still possible. Of recent years an entirely new development has taken place in the organization of special hospitals for women officered by medical women, under the fostering care of the noble Lady Dufferin, whose name, like Milton's, should resound for ages among the zenanas of India. Still in its infancy, it is doing enormous good to a class whose needs are of the sorest, and it is, I believe, destined to flourish and increase until every important town in India has its Dufferin Hospital side by side with its hospital for males.

Sanitary progress, however, is the chief feature of the last thirty years, and more especially of the last decade. I have told you how the death-rate of British soldiers up to 1857 averaged 69 per mille, and that the Sanitary Commission ventured to hope it might be reduced to 20. This estimate was too modest, for since 1882 it has never exceeded 15, except in 1889, when it was 16.6, less than a quarter of the previous rate. The reduction has been effected by hygienic reforms of all kinds, but especially by the gradual improvement of the water-supply in cantonments, first by cleaning and protecting wells and tanks and setting them aside for drinking purposes only, a plan which has been followed for many years; and of recent years by scientifically devised water-works provided with all the latest improvements. —*From the address of the President, Surgeon-Colonel Harvey, at the opening of the Indian Medical Congress, December, 1894.*

SPECIAL ARTICLE.

MILK-INSPECTION AND MILK-STANDARDS.[1]

BY HENRY LEFFMANN, M.D.,
OF PHILADELPHIA;
MICROSCOPIST AND FOOD-INSPECTOR, PENNSYLVANIA STATE BOARD OF AGRICULTURE.

[Reprinted from advance sheets of the forthcoming annual report of the Board.]

NO topic in sanitary science has received greater and more careful attention in the past twenty years than the analysis of water and milk, and few topics have exhibited greater transformations as to the principles on which judgments as to sanitary value may be based. The extension of bacteriology has enabled us to identify the causes of disease and to demonstrate in many cases the methods of propagation.

In water-analysis we can still rely with much confidence on the merely analytic results, though we recognize that the figures for chlorin, ammonia, and so on, are merely indexes of pollution and not injurious in themselves. In milk-analysis, we have first been obliged to correct our analytic methods, and, lately, to revise materially our views as to the manner in which milk affects the public health.

In the judgment of the results of a water-analysis, chemists have never been misled into attaching undue importance to the proportion of dissolved matters; but in judging of the results of milk-analysis this error has long been made, and is still being made by sanitary officers. Thus, in the early days of the agitation of the question of milk-inspection in Pennsylvania, reference was not infrequently made to the high rate of infant-mortality, and this was ascribed to the reduction of the strength of the milk-food by dilution and skimming.

At the present day we are in possession of a much wider and more exact knowledge as to the manner of the distribution of disease by milk. We now know that serious dangers arise from the contamination of the milk by microbes, and that such dangers fall practically into two classes.

The first class is that due to contamination of milk by specific micro-organisms from disease, either among the milk-yielding animals or among the persons about the farm. I do not think that it will be necessary to discuss these questions in much detail, for all are pretty familiar with the subject. Possibly, some may not fully appreciate the extent to which specific disease in dairy-cows exists, and to which it infects human beings; but I frankly say that I am a convert to the view that the production of cows' milk for human food, under the present methods of collection and use, is one of the most dangerous of human industries. As an illustration of the extent to which tuberculosis may exist in herds, I

[1] At the annual (1894) meeting of the Board one session was devoted to the discussion of questions relating to "Milk-Standards and Milk-Inspection." These subjects were selected because at the preceding session of the Legislature the Senate Committee on Agriculture had requested the Secretary of the Board thus to introduce the question at one of the meetings of the Board, and obtain the opinions, *pro* and *con*, of those interested.

All parties interested were invited by advertisement and programs, and a number of persons known to hold diverse views were invited, to be present and explain their positions.

take the following articles from the *Medical Record* of January 6, 1894.

"Probably few physicians are aware of the enormous practical value in the animal industry of tuberculin, that is to say, if the position taken by the New York and other State Boards of Health regarding it is correct. A gentleman who has a valuable herd of thoroughbred cows writes us that twice within the last six months his herd has been examined by competent veterinarians and pronounced healthy. A third examination, however, with the aid of tuberculin, caused a condemnation of over one-half of the herd. He adds:

"'The New York State Board of Health is killing by the hundreds animals condemned by diagnosis with tuberculin, and the State is paying full value for them. The veterinarian says that the autopsy shows the diagnosis to be correct in every case.' He says, also, that it is impossible for the best veterinarian to discover tuberculosis by physical examination except in extreme cases. 'My herd is apparently in splendid condition. Breeders do not know of its existence in their herds. They let a cow remain in the herd until she is unquestionably tuberculous, and then remove her, but she has then already infected the herd. A temperature of 103° F. condemns the cow.' In a herd of Jerseys, at Troy, of 80 head, he has killed 33, and will kill 20 more of them this week. Autopsies are held in the presence of physicians and veterinarians. There have been 15,000 tests with tuberculin in England. New York evidently believes in this kind of diagnosis, and will probably have to pay $500,000 to eradicate tuberculosis. The veterinarian says the State is full of it, in herds of thoroughbreds and common cows.

"We understand from other sources that the State Board of Health fully believes in the certainty of the tuberculin diagnosis. Through its means it has been discovered that some of the best-bred herds, supplying high-priced milk, cream, and butter are infected."

It is apparent from this article, which is merely one of many similar statements, that we have not fully realized the relations of milk to the prevalence of the disease which is known to be the cause of one-seventh of the total deaths in civilized countries, and is the unsuspected cause of many more.

It is, however, not only disease in the cow which may be conveyed. The conditions of farm-life are such that milk often conveys virulent, infectious diseases from the dairyman's family to his customers. Here, again, the literature is so abundant, and the facts are so generally known, that I need not stop to detail them. Those who are interested in this phase of the question will find some valuable and recent data in the report of the State Board of Health of Massachusetts. Several epidemics of typhoid fever were traced to milk supplied from a farm on which a case of this disease existed.

We find, however, that even when milk is taken from cattle entirely healthy, and on farms in which no specific disease exists, it may become a most dangerous article of food. This is due to the decompositions which are induced in it by bacteria. Milk is a close approach to a perfect food. It is not an absolutely perfect food for human beings, because it is deficient in iron; but it serves admirably as a medium for the growth of bacteria, many species of which produce remarkable changes in the casein, by which highly poisonous compounds are set free. Now, under the ordinary methods of milking, infection with multitudes of the common bacteria of the air, water, and even soil is certain to occur. That milk usually contains these is proved by the deposits obtained in centrifugal swimming, which show, under microscopic examination, many repulsive materials. When milk as ordinarily furnished is kept at summer temperature, the bacteria increase with great rapidity, and it is now recognized that a proportion of the infant-mortality in the warmer season is caused by this condition. In fact, the information at present in our possession shows that, unless collected under extreme precaution, raw milk, at least cow's milk, is not a suitable food for human beings. Hence the general practice of sterilization, which has resulted so favorably in the feeding of infants. Statistics have been recently published which show that death from tuberculosis occurs in large proportion in infants, the action being due to the entrance of the tubercle-bacillus into the lacteals, thus preventing the absorption of the food and causing death by starvation.

I have endeavored so far to indicate briefly, but I hope distinctly, the idea that sanitary control of milk-supply may have little to do with the mere question of the chemic composition of milk. It is of very little moment to the consumer, except on a question of cost, whether milk contains 12, 13, or 14 per cent. of solids. The claim that milk watered or skimmed is unwholesome rests on no positive information, and within certain limits of variation, the regulation of the composition of milk is no more a matter of sanitary duty than the regulation of the proportion of fat and lean in the meat sold in our markets, or the proportion of alcohol and extract in beer and ale. Nevertheless, economic considerations will doubtless lead to the establishment of some standard for milk, and it will be sufficient to fix the minimum, not the average. The time is passed when we can claim 9.50 solids not fat for a standard, and even 9.00 per cent. is unjust. In my opinion, there should not be fixed in any legal enactment a higher figure than 8.50 per cent. of solids not fat, and 3.00 per cent. fat for whole milk. Skimmed milk should be permitted to be sold as such, and should not be required to contain any fat; that is, any one purchasing skimmed milk should assume that all the fat may have been removed. I have never been able to understand the logical process in the minds of those who desired to prohibit the sale of skimmed milk. However, when we remember that the same parties who last winter were trying to prevent the sale of skimmed milk proposed also to prohibit the sale of condensed milk containing less than twenty-five per cent. of fat, which would exclude all the standard brands in the market, we can appreciate the impracticable views that may be advanced.

It has been the custom of some persons to designate the skimmed milk from centrifugals as "separator slop," but I am unable to see that such an article is any more of the nature of a refuse than buttermilk, whey, or cheese.

The standard of the Society of Public Analysts of England, an organization which represents, I think, the highest judgment and experience on the question, is 8.50 solids not fat and 3.00 of fat. Concerning this standard, Dr. Vieth, a dairy-chemist of large experience, recently expressed himself as follows:

"My object is by no means to raise the cry that the standard adopted by the society is too high; on the contrary, I think it is very judiciously fixed, but in upholding the standard of purity it should not be forgotten that the cows have never been asked for, nor given their assent to it, and that they will at times produce milk below standard. A bad season for hay-making is, in my experience, almost invariably followed by a particularly low depression in the quality of milk, toward the end of winter. Should the winter be of unusual severity and length, the depression will be still more marked. Long spells of cold and wet, as well as of heat and drought, during the time when cows are kept on pasture, also unfavorably influence the quality, and, I may add, quantity of milk."

Much discussion has been given to the effects of special forms of food and their relation to the wholesomeness of milk. Legislation promoted by health-boards often involves prohibition of the use of brewers' grains or distilling refuse. In regard to these matters I desire to transcribe two personal letters received from Dr. Vieth, whom I have just quoted:

"The reason that I have not acknowledged and answered your favor of August 21st ere this, is, that I desired to give you as much information as possible on the subject of the effect of brewers' grains and similar refuse on the wholesomeness of milk.

"I suppose it is about the same in your country as it is in ours, viz.: that people are not slow in passing an opinion on the matter in question either one way or the other; but when one sets to work to follow the matter up, one finds these opinions not substantiated by facts. I was, when I received your letter, not aware of any publication on the matter in question, and have since taken much trouble to find one or collect information worthy to be transmitted to you. I am sorry to say that I have failed in my endeavors almost entirely. Hunting through the literature, I have found brewers' grains barely mentioned in connection with the question of the wholesomeness of milk—and have got the impression that no one thinks of expecting any bad effect from the use of that food. Here the question turns almost entirely about the admissibility of distillery-wash as food for milk cows. This food has a good many adversaries, but, it seems, even more defenders. It is generally admitted that, when fed in moderate quantities and in a fresh state, and other food given besides, it will do no harm. When given in large quantities—say from fifteen to twenty gallons per day—it certainly produces a very poor milk, which is said to have a bad effect on infants. This is most likely true, but I have failed to find it proved by experiments or exact observations. The best observations on the subject I have come across are made by Prof. König, and are contained in a paper which has been published in *Repertorium für Analytische Chemie*, 1881. They are also based on theoretic speculation, and not on actual experiments. Before leaving the subject I should like to mention that there is most likely a considerable difference between brewers' grains from ale and from lager beer breweries.

"When your card of the 21st ult. arrived I had just come into possession of some more evidence with regard to feeding milch-cows with distillery-wash; that is, the refuse from the manufacture of potato-spirit. Professors König, of Munster, and Maercker, of Halle, are two eminent authorities on the subject of cattle-feeding. The former is of opinion that there is no objection to giving to cows from forty to fifty liters of fresh distillery-wash per diem, provided other suitable food is given in addition. He would rather not have the distillery-wash used in a sour condition, and objects to feeding children with milk from cows which have received it. (In the prohibition of the use of distillery-wash he would see a serious injury; but it should be demanded by law that milk thus produced should all be sold in the sterilized condition.) All the objections would be overcome by the use of distillery-wash in the dried state.

"Prof. Maercker writes that the supposition that the milk from distillery-wash fed cows is injurious to health is in no way supported. The distillery-wash is completely sterilized in its manufacture, which is not the case with any other food. If milk from distillery-wash fed cows has caused illness, the fault is that proper care had not been taken to keep the cowsheds, and more particularly the mangers, clean. Under such conditions, any food might produce similar ill-effects.

"Ohlsen and Uffelmann, of Rostock, have made an investigation into the matter and published the results in the *Jahrbuch für Kinderheilkunde*, 34, vol. 1. The results are, in short, as follows:

"The milk from cows fed with distillery-wash is of neutral, sometimes alkaline reaction. Acidity did not set in before the lapse of forty-eight hours. Provided suitable food be given in addition, the milk does not appear unsuitable for feeding infants. There is no proof that the milk produces indigestion or rachitis with infants. Microscopic and bacteriologic examination did not prove any difference from other milk.

"The work of Ohlsen and Uffelmann is the first evidence on the subject, founded on exact observation, which has come to my knowledge, and as I thought it might be useful to you I wish to draw your attention to it without delay."

It appears, then, that the danger from milk, as far as the dairyman is concerned, is the introduction of specific germs through diseased cattle; and it is worthy of note that the liability to such disease is as great, if not greater, in cattle yielding rich milk than in those yielding poor milk. One of the reasons that sanitary officers have sometimes given for asking that the legal limits of milk shall be fixed above the average is that it will tend to "improve the quality of the dairy-cattle" supplying the city. Independently of the fact that it is no part of the sanitary method to develop superior types, it seems that such stimulation will lead to the worst conditions. Questions of chemic composition are trifling in proportion to the matter of the prevention of the spread of specific disease.

CORRESPONDENCE.

SCARLATINA AND MEASLES AT THE SAME TIME.

To the Editor of THE MEDICAL NEWS,

SIR: In THE MEDICAL NEWS of January 19th there is reported a case of scarlatina and measles in the same patient.

The following case came under my observation December 16, 1894: The patient was a little girl, five years old. She sickened two days prior to my visit, with scarlet fever of moderate severity. The exposure was some twelve days before. When the child was first seen the rash was well distributed over the entire body below the clavicles, and she presented a severe scarlatinal throat, with characteristic tongue; the papillæ being well elevated and the organ very red. The case advanced without any unusual occurrence, and desquamation began about the fingers and toes on the seventh day. My attention was then attracted by a cough which was due to a general bronchitis; the eyes were suffused, but I thought nothing of it until three days after the cough began, when a rash was then making its appearance on the forehead, the neck, and the face, having all the characteristics of that belonging to measles. On the following morning it covered the remaining part of the body, and was accompanied by lachrymation and coryza. No source of infection could be discovered and no case of measles existed in the neighborhood.

Very respectfully yours,

HERMAN C. GORDINIER.

TROY, N. Y.

NEWS ITEMS.

Obituary.—Dr. Alfred L. Loomis, the distinguished physician of New York, died on January 24th, of heart-failure from pneumonia, after a brief illness. He was born in Bennington, Vt., in 1831, and was graduated from Union College in 1851, receiving his medical degree in 1853 from the College of Physicians and Surgeons of New York. Soon afterward he was appointed assistant physician to the charity hospitals on Ward's and Blackwell's Islands, and continued in this position for two years, when he took up private practice. In 1860 he became visiting physician to Bellevue Hospital, and later to Mt. Sinai Hospital, both of which positions he still held at the time of his death. From 1860 to 1875 he was consulting physician to the charity hospitals. In 1862 Dr. Loomis was made lecturer on physical diagnosis in the College of Physicians and Surgeons; in 1865, adjunct professor of the theory and practice of medicine in the University of the City of New York; and in 1867, professor of pathology. Dr. Loomis was a member of many medical societies, and was a generous contributor to medical literature. Among his more important works are *Lessons in Physical Diagnosis; Diseases of the Respiratory Organs, Heart, and Kidneys; Lectures on Fevers; Diseases of Old Age; A Text-book of Practical Medicine.* At his solicitation an anonymous benefactor in 1886 donated $100,000 to the University of the City of New York for the establishment and equipment of the Loomis Laboratory.

Dr. Loomis has bequeathed the income of $25,000 to the Loomis Laboratory; $10,000 to the Academy of Medicine for a Loomis entertainment fund, the income of which is to be devoted to the entertainment of Fellows of the Academy.

Meetings of State and National Medical Societies:

	Meets.	Next meeting.
American Academy of Medicine.	May 8, 1895	Baltimore.
American Association of Genito-urinary Surgeons.	May 28–31, 1895	Washington, D. C.
American Medical Association.	May 7, 1895	Baltimore.
Association of Military Surgeons of the United States.	May, 1895	Buffalo, N. Y.
British Medical Association.	July 30–Aug. 2,	London, England.
Idaho State Medical Society.	Sept. 9–11, 1895	Boise City, Id.
Illinois State Medical Society	May 21, 1895	Springfield, Ill.
International Congress of Hydrobalneotherapy.	1895	Ostend.
International Medical Congress.	August, 1896	Moscow, Russia.
Iowa State Medical Society.	April 17, 1895	Creston, Ia.
Kansas State Medical Society.	May, 1895	Topeka, Kans.
Kentucky State Medical Society.	June 5, 1895	Harrodsburg, Ky.
Louisiana State Medical Society.	May 7, 1895	New Orleans, La.
Maine Medical Association.	June 5, 1895	Portland, Me.
Massachusetts Medical Society.	June 11, 12, 1895	Boston, Mass.
Medical and Chirurgical Faculty of Maryland.	April 23, 1895	Baltimore, Md.
Medical Association of the State of Alabama.	April 16–19, 1895	Mobile, Ala.
Medical Association of Georgia.	April 17, 1895	Savannah, Ga.
Medical Association of Montana,	April, 1895	Anaconda, Mont.
Medical Society of the State of California.	April 16, 1895	San Francisco, Cal.
Medical Society of the State of New Jersey.	June 25, 26, 1895	Cape May, N. J.
Medical Society of the State of New York.	Feb. 5, 1895	Albany, N. Y.
Medical Society of the State of North Carolina.	May 14–16, 1895	Goldsboro', N. C.
Medical Society of the State of Pennsylvania.	May 21, 1895	Chambersburg, Pa.
Medical Society of the State of Tennessee.	April 9, 1895	Nashville, Tenn.
Medical Society of Virginia.	October	Wytheville, Va.
Medical Society of West Virginia.	July, 1895	Elkins, W. Va.
Michigan State Medical Society.	June 4, 1895	Bay City, Mich.
Mississippi State Medical Association.	April 10, 1895	Jackson, Miss.
Missouri State Medical Association.	May 21, 1895	Hannibal, Mo.
Nebraska State Medical Society.	May, 1895	Grand Island, Neb.
New Hampshire Medical Society.	May 30, 31, 1895	Concord, N.H.
New Mexico Medical Society.	July 10, 1895	Las Vegas, N. M.
New York State Medical Association.	October 15-17	New York City
Ohio State Medical Society.	May 15–17, 1895	Columbus, O.
Ontario Medical Association.	June 5–6, 1895	Toronto, Ont.
Oregon State Medical Society	June, 1895	Portand, Ore.
Rhode Island Medical Society.	June 6, 1895	Providence, R. I.
South Carolina Medical Association.	April 24, 1895	Columbia, S.C.
Texas State Medical Society.	April 23, 1895	Dallas, Tex.
Tri-State Medical Society.	April 2–4, 1895	St. Louis, Mo.
Vermont State Medical Society.	October 10, 11	Burlington, Vt.
Washington State Medical Society.	May, 1895	Seatle, Wash.
Wisconsin State Medical Society.	June 5–7, 1895	West Superior, Wis.

Meetings of Philadelphia Medical Societies:

	Meets.	Next meeting.
Academy of Surgery,	1st Monday of month, Oct.—June.	Feb. 4
College of Physicians,	1st Wednesday of month, Sept.—June.	Feb. 6
Section of Gynecology,	2d Monday of month, Oct.—June.	Feb. 11
Section of Ophthalmology,	3d Tuesday of month, Sept.—May.	Feb. 19
Section of Orthopedic Surgery,	3d Friday of month, Oct.—April.	Feb. 15
Section of Otology,	1st Tuesday of month, Oct.—May.	Feb. 5
Section of Surgery,	2d Friday of month, Oct.—May.	Feb. 8
County Medical Society,	2d and 4th Wednesdays of month, Sept.—June.	Feb. 3
Neurological Society,	4th Monday of month, Oct.—April.	Feb. 25
Obstetrical Society,	1st Thursday of month, Sept.—June.	Feb. 7
Pathological Society,	2d and 4th Thursdays of month, Sept.—June.	Feb. 14

The Treatment of Variola with its Antitoxin.—Passed Assistant-Surgeon Kinyoun has reported to the Supervising Surgeon-General of the Marine-Hospital Service the employment of the blood-serum of a heifer calf, vaccinated four weeks previously, in the treatment of two cases of variola. Fifteen cubic centimeters of the serum were injected subcutaneously when the cases came under observation, and again after the lapse of eight or ten hours. In one case four injections were made, in the other seven. A careful study of the cases, individually and comparatively, led to the conclusion that the treatment exercised a modifying influence upon the disease, especially upon the eruption. One of the cases died, but it is believed that life was prolonged at least seventy-two hours by the treatment. It is suggested that as the serum appears capable of mitigating the attack of variola it ought to have the power of rendering susceptible individuals refractory to the disease.

BOOKS AND PAMPHLETS RECEIVED.

When All the Woods are Green. A. Novel. By S. Weir Mitchell, M.D., LL.D. New York: The Century Co., 1894.

Kaposi's Clinic. Interesting Dermatological Cases. By Frank J. Thornbury, M.D. Reprinted from the Buffalo Medical and Surgical Journal, 1894.

Bloodless Vaginal Myomectomy. By Oscar J. Mayer, M.D. Reprinted from the Journal of the American Medical Association, 1894.

Uterine Fibroids. By Charles P. Noble, M.D. Reprinted from the Medical and Surgical Reporter, 1894.

Tricuspid Insufficiency. By Frank J. Thornbury, M.D. Reprinted from the Buffalo Medical and Surgical Journal, 1894.

Air and Contact Infection. By Frank J. Thornbury, M.D. Reprinted from the St. Louis Clinique, 1893.

Arsenite of Copper as an Antispasmodic. By W. Blair Stewart, A.M., M.D. Reprinted from the American Therapist, 1894.

Spindle-Cell Sarcoma and Epithelioma: A Report of Cases. By W. Blair Stewart, A.M., M.D. Reprinted from the American Medico-Surgical Bulletin, 1894.

Massage in Gynecology. By Oscar J. Mayer, M.D. Reprinted from the Journal of the American Medical Association, 1894.

The Special Training of the Medical Officer, with Brief Notes on Army Medical Schools Abroad and at Home. By Charles H. Alden, M.D. An Address Delivered before the Association of Military Surgeons of the United States, at Washington, D. C., May 3, 1894.

Morphinism in Medical Men. By J. B. Mattison, M.D. Reprinted from the Journal of the American Medical Association, 1894.

The Modern and Humane Treatment of the Morphin-Disease. By J. B. Mattison, M.D. Reprinted from the Medical Record, 1893.

Address before the American Medico-Psychological Association. By S. Weir Mitchell, M.D., LL.D. Reprinted from the Journal of Nervous and Mental Diseases, 1894.

Twelfth Annual Report of the Provincial Board of Health of Ontario, being for the year 1893. Printed by order of the Legislative Assembly. Toronto: Warwick Bros. & Rutter, 1894.

Rational Medicine and Charlatanry. By Burnside Foster, M.D. Reprinted from the Northwestern Lancet, 1894.

The Bubo Plague in China, with a Brief Account of the Great Plague of London. By Burnside Foster, M.D. Reprinted from the Journal of the American Medical Association, 1894.

Home Treatment for Catarrhs and Colds. A Handy Guide for the Prevention, Care, and Treatment of Catarrhal Troubles, Cold in the Head, Sore Throat, Hay Fever, Hoarseness, Ear Affections, etc. By Leonard A. Dessar, M.D. New York: Home Series Publishing Co.; and London: Ballière, Tindall & Cox, 1894.

Nature, Diagnosis, and Treatment of Pernicious Anemia. By Alfred Stengel, M.D. Reprinted from the Therapeutic Gazette, 1894.

Appendicitis: A Timely Operation. By Howard Crutcher, M.D. Reprinted from the Medical Current, 1894.

The Influence of Diseases of the Nose and Naso-Pharynx on Other Parts of the Body. By W. Scheppegrell, A.M., M.D. Reprinted from the New Orleans Medical and Surgical Journal, 1894.

The Sources of the Defective, Dependent, and Delinquent Classes. By Bayard Holmes, M.D. Reprinted from the Bulletin of the American Academy of, Medicine, 1894.

Incipient Inflammations of the Ear in Early Life, and Their Sequelæ. By S. MacCuen Smith, M.D. Reprinted from the New York Medical Journal, 1894.

One Year in a Southern Skin-Clinic. By Isadore Dyer, Ph.B., M.D. Reprinted from the New Orleans Medical and Surgical Journal, 1894.

On the Relations of Some Occupations to Eyesight. By Simeon Snell, F.R.C.S. Ed. Reprinted from the Quarterly Medical Journal, Vol. III, Part I.

Some Meteorological Data. By Samuel A. Fisk, A.M., M.D. Reprinted from the Boston Medical and Surgical Journal, 1894.

Transactions of the Medical Society of the State of Pennsylvania, at its Forty-fourth Annual Session, held at Philadelphia, 1894. Vol. XXV. Published by the Society. Philadelphia: The Edwards and Docker Co., 1894.

Medical Jurisprudence, Forensic Medicine, and Toxicology. By R. A. Witthaus, A.M., M.D., and Tracy C. Becker, A.B., LL.B. Vol. II. New York: William Wood & Co., 1894.

The Bristol Meeting of the British Medical Association, 1894. Reprinted from the Bristol Medico-Chirurgical Journal, 1894.

Diet for Health. By John Aulde, M.D. Reprinted from the American Therapist, 1894.

The Physiological Rôle of Antitoxin Inoculations. By John Aulde, M.D. Reprinted from the American Therapist, 1894.

Nucleins: A Clinical Study. By John Aulde, M.D. Reprinted from the New York Medical Journal, 1894.

The Physiological Actions of Alcohol. By David Cerna, M.D., Ph.D. Reprinted from the Therapeutic Gazette, 1894.

The Therapeutic Uses of Spartein. By David Cerna, M.D., Ph.D. Reprinted from the New York Medical Journal, 1894.

The Modern Treatment of Fractures of the Patella, with Illustrations. By J. W. Felty. Reprinted from the International Journal of Surgery, 1894.